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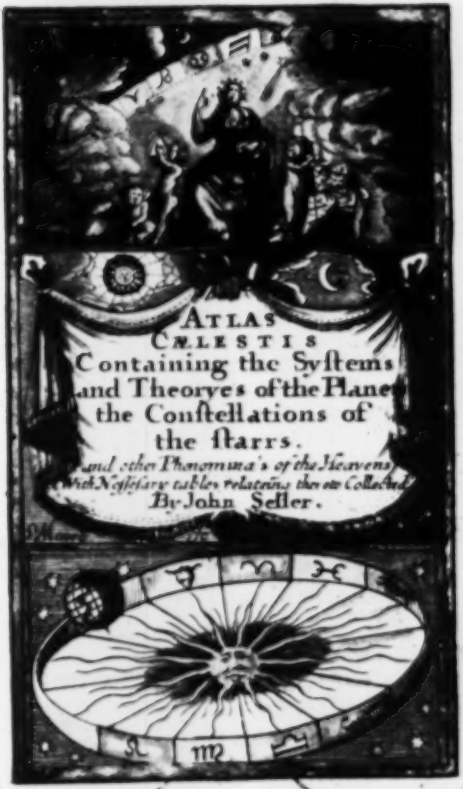

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ATLAS
CVLESTIS
Containing the Syſtems
and Theories of the Planets
the Conſtellations of
the Starrs
By John Seller.

A brief Deſcription of the ſeveral Syſtems, Theories, Schemes, and Tables contained in this Book.

Alſo, a Diſcourſe of the Celeſtial Bodies, the Sun and Moon, and the reſt of the Planets, Fiery-Meteors, Blazing-Stars, and other Phenomena's in the Heavens.

CHAP. I.

A Deſcription of the Syſtem of Ptolomy.

THis Syſteme of the Heavens, and the Motions of the Planets, is of greater antiquity than the other Palanetary Syſtems, either by *Copernicus*, or *Tycho*, and is ſuppoſed by ſome to be more conſentane ous to the Letter of the Scripture than the reſt. It was firſt invented by one *Claudius Ptolomeus*, a Native of *Peluſium*, in his

time the Prince of *Aſtronomers*, *Aſtrologers*, and *Geographers*, who lived *Anno Chriſti* 135, and wrote ſeveral Books on theſe Subjects.

This Syſteme ſuppoſeth the Earth to be fixed as the Center of the World, and that all the Celeſtial-Bodies move round the ſame, both in their Diurnal and Annual Revolutions.

The World is ſuppoſed to be divided principally in two parts, Elemental and Celeſtial: The Elemental admits of four diviſions.

The firſt is the *Earth*.

The ſecond is the *Water*, both which makes one intire Body or Globe, whereon we dwell.

The third is the *Air*, encompaſſing the Earth.

And the fourth is the *Fire*, which according to the opinion of ancient Philoſophers, is contained in that ſpace between the Air and the Sphere of the Moon.

Theſe four Elements are ſubject to a continual change and alteration of one into another, according to the Proverb, *Omnia ſublunaria mutabilia*.

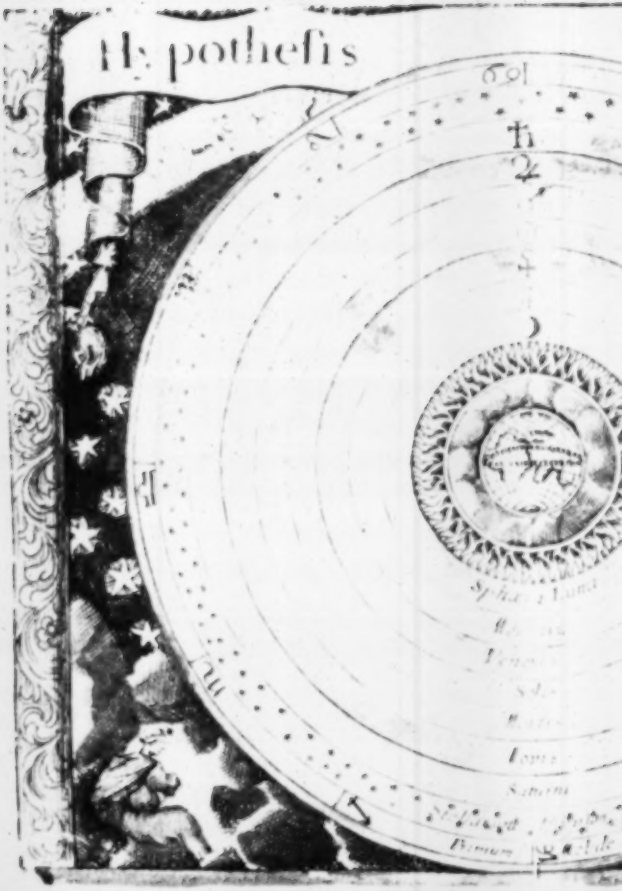
The Celeſtial part is that which is without theſe elementary parts, void of all changes, and is by the ancient Aſtronomers divided into ten Parts or Heavens.

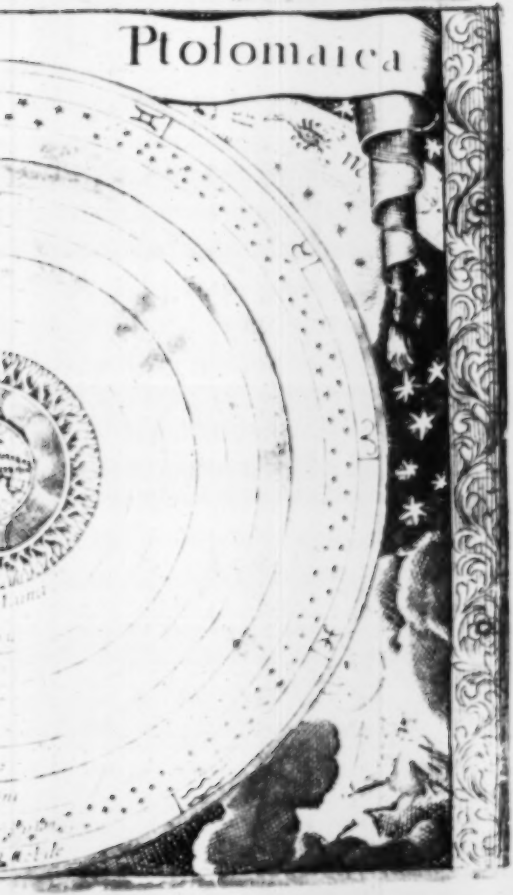
The firſt of which, next to the Region of Fire, is the Heaven or Orb of the *Moon*.

The ſecond of *Mercury*.
The third of *Venus*.
The fourth of the *Sun*.
The fifth of *Mars*.
The ſixth of *Jupiter*.
The ſeventh of *Saturn*.
The eighth of the *Fixed-Stars*.
The ninth is called the *Criſtalline-Heaven*.
The tenth the *Primum Mobile*.

The

Anno 1


Hypothesis


Ptolomaica

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The magnitude of these Heavens is known by their Courses, which those great Bodies within them makes, round the Poles of the *Zodiack*.

The *Moon* runneth through the Heavens, by her natural course from West to East in 27 Days, and 8 Hours.

Mercury in 88 Days.

Venus in 225 Days.

And the *Sun* in a Year, or 365 Days and 6 Hours.

Mars in two Years.

Jupiter in 12 Years.

Saturn in 30 Years.

The eighth Heaven perfects its course according to the affirmation of *Tycho Brahe*, in 25400 Years.

These Heavens are turned round about upon the Axis of the World by the tenth Heaven, which is the *Primum Mobile*, or first Mover, by which motion is caused Day and Night, and the dayly rising and setting of the Heavenly Lights.

Of the Copernican System.

THis System was contrived by one *Nicholas Copernicus*, a Native of *Thorne* in *Prussia*, a Cannon of the Church of *Frawenburgh*, the Cathedral of *Wamerlandt*, Scholar to *Dominicus Maria*, of *Ferrara*, to whom he was Assistant in making his Astronomical Observations at *Bologna*, and Professor of the Mathematicks at *Rome*; and had the happiness to frame this Hypothesis, which hath the general approbation of the most Learned Astronomers and Mathematicians in *Christendom*. He lived about the Year *Anno Christi* 1536, whose System and Hypothesis is thus framed.

1. That the Sun is placed in the midſt of the World in or about the Center of the Sphere of the fixed Stars, and hath no Circular motion, but Central only.

2. The Primary Planets are each of them in their proper Syſtems moved about the Sun, and do accompliſh their Periodical Revolutions moſt exactly in their determinate and appointed times.

3. That the Earth is one of the Planets, and with her Annual motion about the Sun, deſcribeth her Orb in the middle, between the Orbs of *Mars* and *Venus*.

4. That the ſecundary Planets are ordinarily moved about the primary Planets, reſpecting their Bodies for their common Nodes or Centers.

5. That the ſecundary Planet the Moon is moved about the Earth as her Center, where by reaſon of the Annual motion of the Earth ſhe hath not only relation to the Earth, but by conſequence to the Sun, as the other Planets have.

6. That as the primary Planet the Earth, is inviroued with the Sphere of the Moon, ſo are ſome (if not all) the other primary Planets, who have in like manner their Moons or Concomitants encompaſſing them: As *Jupiter* his Satellities, or Circum-Jovials, and *Saturn* his Ring. With ſome other Stars lately obſerved by ſome of our vigilant and accurate *Aſtronomers*, both in *England* and elſewhere.

The

Hypothesis

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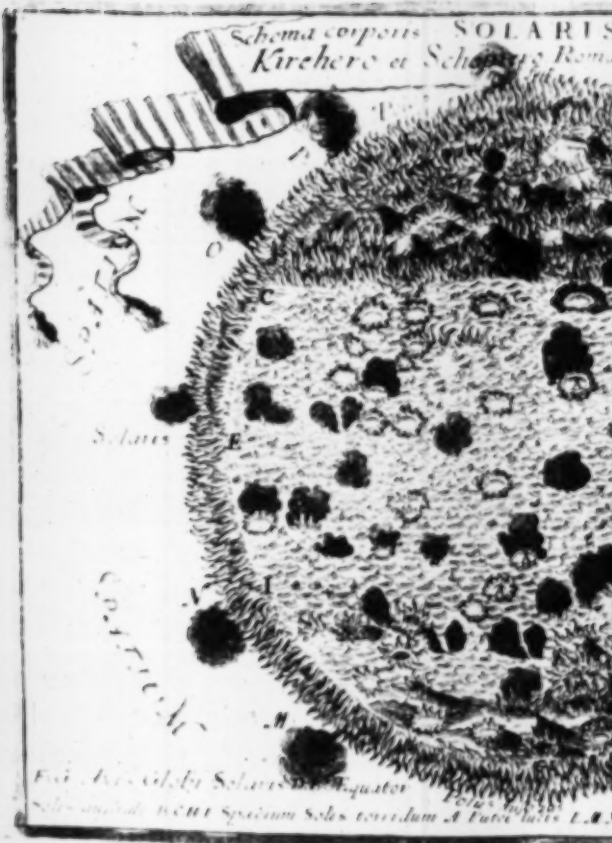
Schema corporis SOLARIS
Kirchero et Schoppero Roma
Solaris
Spacium Solis torridum A Tutor lucis

RIS prouta P P
Roma 1035 observatum
Æquator
L
Solaris B.F.C. Spatium Solis borealis H.G.I. Spatium
LMNO etc. Evaporationes unæ et macularum Origo

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The order and motion of the Planets in the Copernican System; wherein is shewed the proportion of the Planetary Orbs, according to the lateſt and moſt approved Experiments of Learned Aſtronomers, with ſome remarkable Obſervations of the moſt eminent Phenomena's in the Planetary motions happening therein.

Of the Sun.

THe Sun who is *Fons lucis, oculus & anima Mundi*, the Fountain of pure Light, the Eye and Soul of the World, is placed in the middle and center of the Planetary Syſtems, and is far greater than any of the Planets that move about him.

He performs a revolution upon his proper Axis, in 26 Days, or thereabouts, as Teleſcope-Obſervations teſtify by ſeveral remarkable ſpots that appear in his Body, by virtue whereof (ſaith the Learned *Kepler*) all the Planets are carried about the Sun in their ſeveral Orbs, and ſeems to be forced about by the Central motions of that great Body in the middle of their Vortex.

And hence it is, that according to the diverſity and appearance of his riſing and ſetting, and obliquation, he divideth the Seaſons of the Year, and cauſeth an interchangeable courſe and viciſſitude of Day and Night.

Of Mercury.

The firſt primary Planet above the Sun is *Mercury*, who

who performs his course in his Elipsis, in 88 Days.

His proper Diurnal motion is 4 Deg. 5 Min. 12 Seconds, the Circuit of his Sphere is 12059773 Miles; so that he wheels in a Day 137040 Miles, and in an Hour 5710 Miles, and in a Min. 91 Miles.

The Body of *Mercury* is less than the Earth 3000 times, his greatest elongation from the Sun in respect of the Earths position is sometimes but 17 Deg. and never fully 19 Deg. so that he is seldom seen of us.

Of Venus.

Next above *Mercury* is the Orb and glittering Star of *Venus*, who maketh her Periodical Revolution in her Elipsis about the Body of the Sun, in 224 Days.

It is from the Sun to the Sphere of *Venus* 3636104 Miles; hence the Circuit of her Sphere is 22855911 Miles.

Her mean Diurnal motion is 1 Deg. 36 Min. 8 Seconds; so that she moveth in a Day 101712 Miles, in an Hour 4238 Miles, and in a Min. 70 Miles: She is lesser than the Earth 147 times, and yet in respect of her vicinity to the Earth (in the lower part of her Orb) she appears much brighter than any Star in the whole Firmament, the Sun and Moon excepted, insomuch that she hath been often seen in the day time, as at the Birth of His Majesty K. *Charles* the 2d. When she is a morning Star, rising before the Sun, she is called *Lucifer*, but when an evening Star *Vesperus*.

Her greatest elongation from the Sun (as it is beheld from the Earth) is but 45 Deg. and never 48 Deg.

Of the Earth.

In the middle of all Planets is the Earth (which according

according to the Syſtem of *Copernicus*) being plac'd between the Orbs of *Mars* and *Venus*, accompliſheth her Revolution in 365 Days, 5 Hours, and 59 Min.

It is from the Sun to the Body of the Earth 5021896 Miles, the Circuit of her Sphere is 31560207 Miles, her Diurnal motion 39 Min. 8 Seconds.

Therefore the Center of the Earth is transferr'd in a Day 86418 Miles, in an hour 5600 Miles, and in a Min. 60 Miles.

The Body of the Earth is leſs than the Earth 333 times, and greater than the Moon 45 times. A Degree of a great Circle upon the Earths Superficies is commonly reputed 60 Miles, but by Mr. *Norwood*'s Experiment is found to be 69 Miles.

And according to the firſt computation, the Diameter of the Earth is 6872 miles, its Semidiameter 3436 miles.

The circuit of compaſs of the Earth and Water containeth 21600 Miles.

In the Superficies of the Earth is contained 148490906 Square Miles.

The whole craſſitude or Body of the Earth and Waters containeth 5101 31305785 Cubical Miles.

Of Mars.

Next above the Earth is the Planet *Mars*, who performs his Revolution about the Sun in one Year, 321 Days, 22 Hours, and 20 Min. It is from the Sun to the Body of *Mars* 7635292 Miles.

The Circuit of the Sphere of *Mars*, is 47993264 Miles, and his Diurnal motion 31 Min. 27 Seconds; ſo that he wheeleth in a Day 69842 Miles, in an Hour 2910 Miles, and in a Min. 48 Miles and a half.

The Body of *Mars* is leſs than the Earth 146 times,

Mars,

Mars, *Jupiter*, and *Saturn* (contrary to the inferior Planets) being placed without the Perimeter of the Earths Orb, are sometimes in Conjunction with the Sun, and sometimes in Quadrature and Oppoſition, which cannot be in *Venus* and *Mercury*, in regard their Orbs are included within the Earths Elipſis.

Of Jupiter.

Next above *Mars* is *Jupiter*, who runs his Courſe in 11 Ægyptian Years, 315 Days, 14 Hours, and 30 Min.

It is from the Sun to *Jupiter* 26179152 Miles. The Circuit of the Sphere of *Jupiter* is 164554670 Miles, and his Diurnal motion about the Sun is 4 Min. 59 ſ.

Hence he wheeleth every Day 17995 Miles, every Hour 1583 Miles, and every Min. 26 Miles. He is leſs than the Earth one time.

About his Body (reſpecting it as their Center) move four ſmall bright Stars, call'd the Satellities, or Circum-Jovials, who continually move round his Body, and are ſeen only by a good Teleſcope.

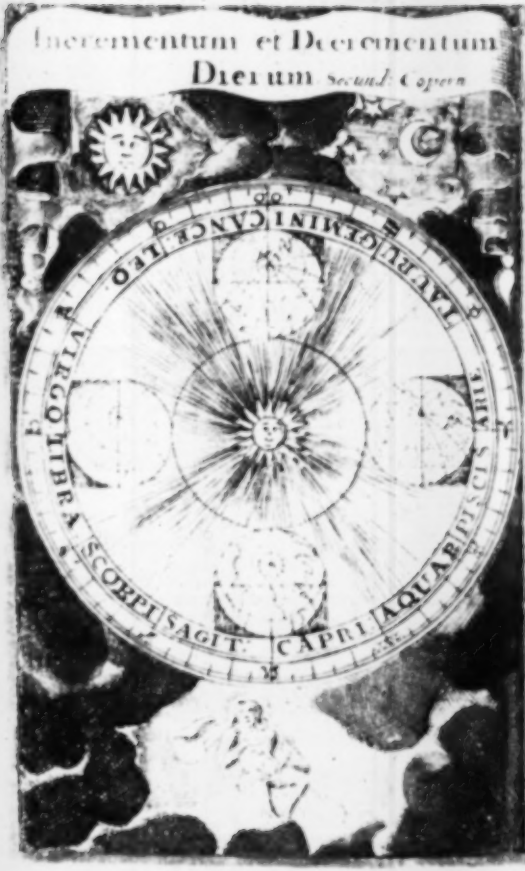
Of Saturn.

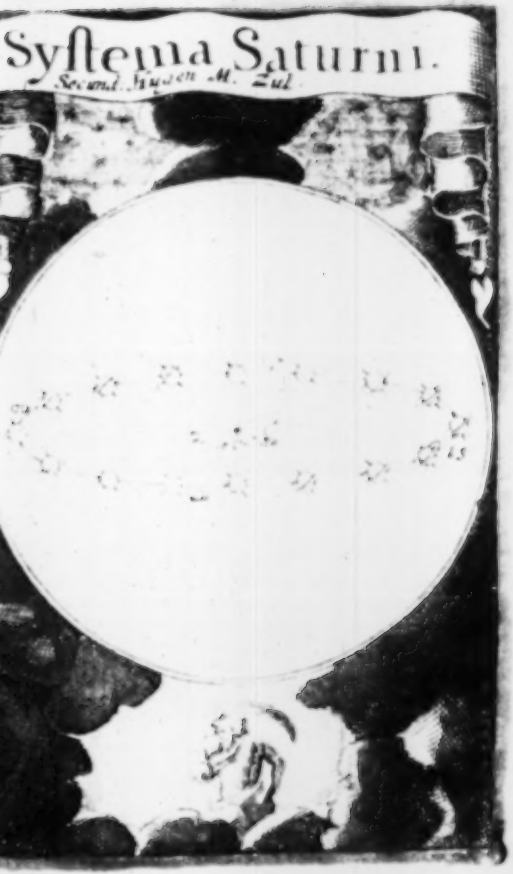
Saturn is the higheſt Planet in the Planetary Syſtem, and ſloweſt in motion, inſomuch that he performeth but one Revolution about the Sun in 29 Ægyptian Years, 162 Days, 1 Hour, 58 Min.

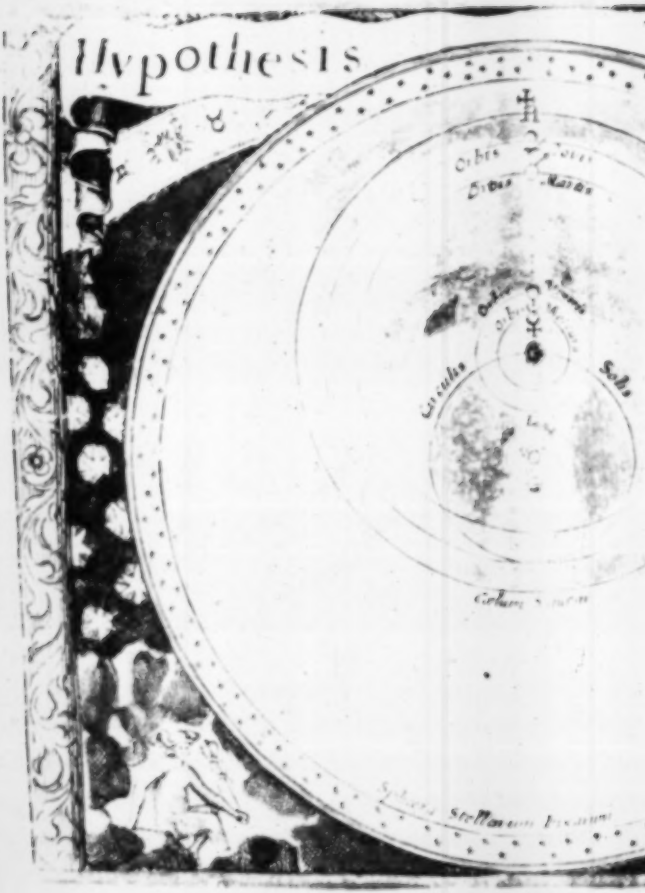
It is from the Sun to *Saturn* 47833576 Miles. The Circuit of his Sphere is 300668192 Miles. His proper daily motion is 2 Min. 0 Seconds.

Therefore he wheeleth in a Day 15959 Miles, in an Hour 1498 Miles, and in 2 Min. 25 Miles.

He


Incrementum et Decrementum
Dierum secund. Copern.
TAURUS GEMINI CANCER LEO
VIRGO LIBRA SCORPI SAGIT. CAPRI AQUARIUS PISCES ARIES


Systema Saturni.
Secund. Hugen. M. Jul.


Hypothesis
Orbes
Circulus
Sol

Tychonica
Solis

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He is once bigger than the Earth; about his Body is a bright flat Ring which encompasseth him about.

Of the Moon.

The Moon is a secondary Planet, and retains the Earth for her Center, about which she performs her Revolution in 27 Days, 7 Hours, 43 Min.

It is from the Center of the Earth to the Moon 203236 Miles.

The Circumference of her Sphere is 127483 Miles, her Diurnal motion is 13 Deg. 10 Min. 35 Seconds.

So she wheeleth about in a Day 46157 Miles, in an Hour 1948 Miles, and in a Min. 30 Miles and a half.

She is less than the Sun 15924 times, and less than the Earth 45 times.

Of the Tychoneau System.

THis System was invented by the Illustrious *Tycho Brahe*, a Nobleman of *Denmark*, Lord of *Knudsthorp*, in the Island of *Schonen*, not far from *Elsenbourg*, who was the most diligent and exquisite Observator in his time, who framed this Hypothesis, as a mean between *Ptolemy* and *Copernicus*. He made a happy beginning, and glorious progress in the restauration of *Astronomy*, wherein he did rectify the motions of the Sun, Moon, and the fixed Stars, which appeared in that Horizon wherein he lived. In his Hypothesis, he supposeth that *Mercury*, *Venus*, and all the other Planets (except the Moon) in their motion, respect the Sun as their Center; so that *Saturn* in opposition to the Sun is nearer to the Earth than *Venus* in Apogeon, and that *Mars* in opposition to the Sun is nearer to the Earth than the Sun it self,

as may appear by inſpection from the Hypotheſis it ſelf.

CHAP. II.

A Deſcription of the ſeveral Natures, Qualities, and Subſtances of the Planets.

Of the Sun.

WHoſe nature and ſubſtance by a probable conjecture, is ſuppoſed to be no other than a formal fiery Body, conſiſting of a true proper elementary Fire, partly liquid, and partly ſolid: The liquid being an Ocean of Light, moving with fiery Billows, and flaming Ebullitions, as is manifeſt to thoſe that look upon it through a Teleſcope: The ſolid parts being like our Terraqueous-Globe, divided into Continents, Iſlands, Mountains, Rocks, that thereby the vehement motion exeſtuating Solar-Ocean might be reſtrained, and therefore may probably conceive, that the Solar-Globe is as this Earth of ours, hollowed with vaſt Subterraneous Caverns, and Receptacles of Fire, which break forth of the Solar, Ignivomous Mountains, in the ſame manner as we find our Subterranean-Fires to break out of *Ætna*, *Hecla*, and *Veſuvius*; and it is in all appearance as probable, that the ſolid parts of the Sun, within which the fluid and liquid Fire is contained, are as Metal in a Furnace. It is alſo evident, that the ſplendor as well of the fluid as the ſolid Fire of the Solar-Globe, is far more bright than our earthly Fire or Flame, as you may ſee in the Map.

The

The *Macula* or Spots that are ſeen in the Body of the Sun, are certain cloudy obſcurities appearing upon his Diſque. Their ſhapes and figures are of unequal form, and moſt irregular, which argues them not to be Stars or Planets moving about his Body. They have a motion from the Oriental part of the Suns Diſque, to the Occidental, which courſe they ordinarily finiſh within the ſpace of 13 Days, more or leſs according to their greater or leſſer Latitude: for they make their motion as it were in a *Zodiack* of about 60 Degrees broad, by the obſervation of which ſpots, it is found that the Sun hath a motion upon its own Axis from Eaſt to Weſt, which converſion is finiſhed in 27 Days, or thereabouts.

A Table of the magnitude of the Sun, compared with the Earth, according to Ptolemy, Maurolycus, Clavius, *and* Barocius.

The Suns true Diameter contains	Its Circumference contains	The Area of its greateſt Circle contains	Its common Superficies contains	Its ſolidity contains
Simple Diameters of the Earth.	Simple Diameters of the Earth.	Square Diameters of the Earth.	Square Diameters of the Earth.	The ſolidity of the Earth.
5 $\frac{1}{2}$	17 $\frac{1}{2}$	20 : 00	134 - 0	166 : $\frac{1}{4}$

Of the Moon.

The Moon is the neareſt to us of all the Planets in this our elementary Sphere, it being a dark and opacous Body, altogether deprived of innate or proper Light, evident in its total Eclipſes, wherein ſhe altogether loſeth her luſtre. Hence may be inferred, that ſhe hath her light from the Sun, and as ſhe is opacous, ſo ſhe is a denſe Body, apt to receive and reflect the Suns light.

The Body of the Moon appears to be full of Eminencies and Depreſſions, like our Hills and Valleys, apparent to the ſence by the help of the Teleſcope, which ſpots and excreſſencies varying their ſcituation and magnitudes, according to the divers acceſs or receſs of the Sun, to which their ſite is always oppoſite thence, evidencing to be the ſhadows and elucidations of the moſt eminent parts of the Moons-Globe, reſembling our Alps, Hills, and Mountains: from whence may be concluded, that the brighter and more reſplendid parts of the Moon to be thoſe that are more denſe, ſolid, and opacous, like our Earth, in regard they reflect a greater portion of light than the obſcurer parts to reflect a leſs light, and therefore ſuppoſed to be pellucid, and diaphonous, agreeable to our Ocean, Seas, Lakes, and Rivers, from whence it may be inferred, that the Moon is compoſed of ſolid and liquid parts, as this our Terraqueous-Globe in which we inhabit; and therefore hath been conceived by moſt *Aſtronomers*, as well Ancient as Modern, that the Moon is as it were another Earth.

The ſpots that appear in the body of the Moon are diſtinguiſh'd into ancient and new.

The ancient are thoſe greater and larger ſpots, at

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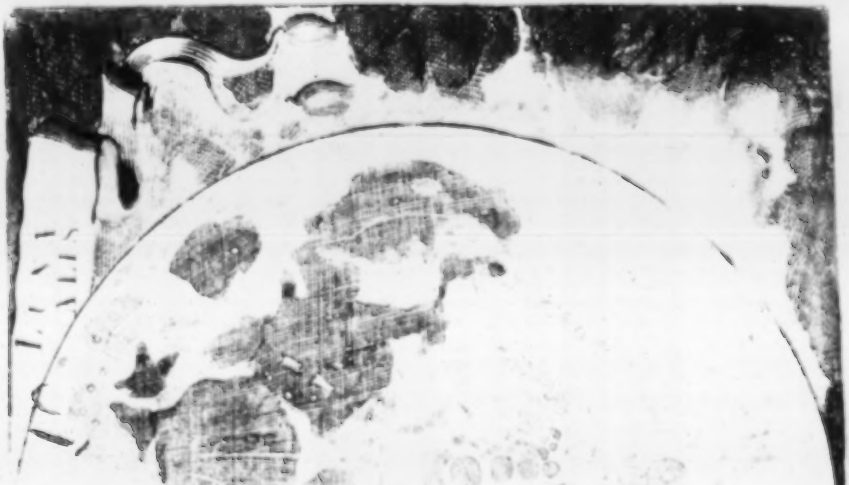

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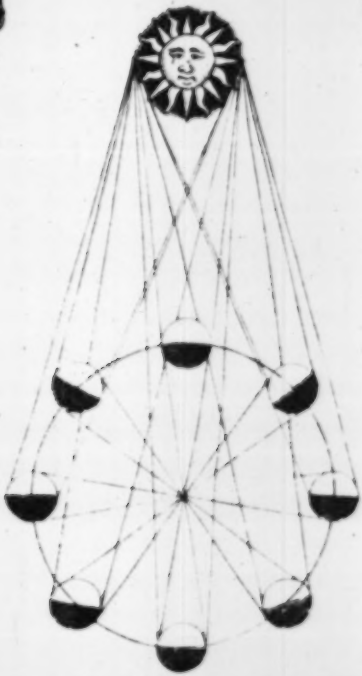
Æstus Maris per Motum Lunæ
Rdes cartes lib: 3 art 99.

Illuminatio Lunæ Per Solem.

P. Gassendi Institutio Astronomica lib. 2. cap. 26



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all times discernable, without the help of a Telescope, resembling large Seas, Lakes, and Bays.

The new ones are those lesser spots, which are not discernable, but by the help of a Telescope, which are various, differing in magnitude, scituation, colour, &c. observed with exactness, described by sundry eminent, modern Astronomers, *Hevelius*, and *Langrenus*, &c. some of whom have imposed names and appellations upon the several eminencies that appear upon her Body, for the better knowledge of them, being of great use and advantage to all Students in *Astronomy*, and very necessary in the making of Observations: As also in Eclipses, for the better determining the quantity of an Eclipse of the Moon. And according to this forementioned Hypothesis, of the light parts representing the Land, and the darker parts the Seas, these two Maps in this Book are made both for its natural appearance, as well as the artificial representations, both taken from those of *Hevelius*'s Observations; who hath also given names to the eminent parts of the Moon, having described and distinguished them by Geographical marks and denominations, transferring to them names proper to our Terrestrial-Continents, Promontories, Mountains, Islands, Seas, Lakes, &c. as may be seen at large in his Book called, *Selenography*. Aud in the Sphere of *Manilius*, by *Edward Sherborn* Esquire.

A Table of the Moons diſtance from the Center of the Earth, in Semidiameters of the ſame, and its Horizontal Parallax, according to Kepler, *and the* Rodolphin-*Tables.*

In Oppoſition or Conjunction.					
Diſtance from the Center of the Earth.			Horizontal Parallax.		
Apog. Semid.	Med. Semid.	Perig. Semid.	Apog.	Med.	Perig.
			′ ″	′ ″	′ ″
59 :: 0	56:28	54 : 0	58:22	58:16	62:20

In its Quadratures.					
Diſtance from the Center of the Earth.			Horizontal Parallax.		
Apog. Semid.	Med. Semid.	Perig. Semid.	Apog.	Med.	Perig.
			′ ″	′ ″	′ ″
59 - 0	56.28	54 0	58.22	60.53	63.41

The Apparent Diameters of the Moon according to Kepler.

In Oppoſition, Conjunction, or Quartile Aſpect.	Apparent Diameters of the Moon.	
	Apog.	Perig.
	′ ″	′ ″
In ☌ and ☍	30 — 0	34 — 10
In □	32 — 32	36 — 00

The

The true magnitude of the Moon, compared with that of the Earth and Sun, according to Kepler.

The true Diamers of the Sun, and Moon, unto that of the Earth, supposed to be 100.			The Solidity of the Moon to the			
			Earth		Sun	
Sun	Earth	Moon	as	to	as	to
25 $\frac{1}{2}$	100	1500	1 .	59	1.204671	

Of Mercury.

The Figure of *Mercury* is orbicular, or round, not Mathematically, but Physically such, rising here and there with exuberating Hills, and Mountains; in the same manner as this earthly Globe of ours, being an opacous Body, and receiving its illumination from the Sun; whence at several times, it is seen under several faces and appearances. He appears in a figure like that of the New Moon when he is Retrograde and approaching to an Opposition to the Sun. There are likewise observed in him several spots, successively following one another, some light, some duskish, which light spots are by *Kircherus* conceived to be the said Terrestrial and Mountanous parts thereof, which by their successive motion, likewise evince, that he hath a Rotation upon his own Axis, determined within the space of 6 Hours, or thereabouts.

Of Venus.

The most illustrious of all the lesser Planets is *Venus*, and from the remarks made by the Ancients, these

thefe are fome that follow. Firft, She is obferved to precede the Sun rifing in the Morning before him: fometimes to follow the Sun in fetting after him; and fometimes in Conjunction with the Sun; and other times receding from him; and fometimes to differ in magnitude, being greater or leffer, whence they concluded her fometimes to approach nearer to the Earth, and to be in *Perigeo*, and other times to recede further from it, and to be in *Apogeo*.

Befides thefe Obfervations of the Ancients, Modern Aftronomers, by the help of the Telefcope, have noted feveral other fignal Phenomena's, as that fhe is liable to the fame variety of changes as the Moon, fometimes almoft full, and at other times gibbous, and now and then horned, as well when fhe is Vefpertine as Matutine. She is fometimes feen by day, as is before noted. Of the ftructure, nature, and fubftance of this Planet, from the forementioned Phenomena, it may be concluded to be an opacous Body, and hath its light from the Sun, that it is of a Spherical form, becaufe fpherically illuminated. It is of a rough and uneven Superficies, as appears by Telefcopical Obfervations. It is made up of folid and liquid matter, as our Terraqueous Globe, and is found to have a Rotation upon its own Axis and Center, which it compleats within the fpace of 24 Hours.

Of Mars.

Although this Planet of all the reft is the moft inobfervable, (as both *Pliny* and *Kepler* affirms) yet not been able to lye hid from the fubtile difcoveries of Aftronomical Eyes, as the ingenious Efq. *Sherburn* fays; He is obferved to move in a large Orbit about the Sun, as the Center of its motion, within which Circle

Circle he includes the Earth with the Moon, *Mercury*, and *Venus*, and takes up a great part of the Solar Region: and when he is in *Perigeum*, he comes to the Earth, then the Sun and the notable increase of his light, by reason of which he is taken for a Comet or new Star.

As to his Figure, it is Spherical, and by some hath been observed with a black spot on the middle of his Body. Monsieur *Hugens* in the Year 1656, observed a broad obscure Zone or Belt to shadow half the Disque of the said Planet. His light is derived from the Sun, as that of the Moon, as to the structure and nature of his Globe composed of solid and liquid matter.

Of Jupiter.

The Planet *Jupiter* is one of the most noted and beneficent Planets. He is carried in an Orbit above *Mars*, as is manifest by the mutual Conjunctions of those Planets, at which time he is obscured and hidden from our sight by the interposition of *Mars*, as the Sun is by that of the Moons Body.

Riccialus reports in the Year 1643, that he observed the edges and margins of his Globe to be rough and uneven, rising like Hills and Mountains, are discovered in his Body by help of an excellent Telescope, two small spots and two great ones, like hollow Caverns, one round, and the other oval. *Hevelius* also affirms, that the face of *Jupiter* is variegated with spots, in a manner like that of the Moon, but it is manifest by frequent Observations that there is a Belt (as it were) encompassing the Disque of the Planet; and this also admits of great varieties in appearance, this Belt not appearing always straight but bending, with its convexity upwards, and sometimes

 down-

downwards, evident marks of the Motion and Rotation of the Planet upon its own Center. As to the ſtructure of his Globe, it may be concluded as with the reſt of the Planets, to be compoſed of ſolid and liquid parts: and although his Body is Phyſically round, yet it is full of uneven Aſperities, having a motion upon its own Center finiſhed in 11 Days, 20 Hours, 1 Min. 15 Seconds, and that its Zones or Belts are ſolid parts, leſs capable of receiving light than the reſt of the ſolid or liquid parts are.

Of the Satellites of Jupiter.

The Satellites are four Stars ſo called, moving about the Body of *Jupiter* as his Guards, diſcovered firſt in *Italy*, by *Galeleus*, in the Year 1610. In *Germany* by *Simon Marius*, by means of a Teleſcope, without which, by reaſon of *Jupiter*'s ſplendor, and their ſmall diſtance from him (none of them receding above 12 Degrees from his Body) they are not to be diſcerned, and therefore altogether unknown to the Ancients. Theſe by *Galeleus* (their firſt Diſcoverer) were called *Sidera Medicea*. The firſt next *Jupiter* he call'd *Coſmos minor*; the next *Coſmos major*; the third *Maria Medicea*; the fourth *Katherina Medicea*. *Simon Marius* giving to the innermoſt, the name of *Jovial Mercury*; the next *Venus*; to the third *Jupiter*: to the fourth *Saturn*. But *Jo. Baptiſta Hodierna*, who firſt of all publiſhed *Ephemerides* of the motions of the ſaid Stars, names the inmoſt (from the young Prince of *Tuſcany*) *Principharus*; the ſecond (from *Victoria* Dutcheſs to the Grand Duke) *Victripharus*; the third (from *Coſmos* the firſt Duke of *Florence*) *Coſmipharus*; the laſt (from *Ferdinand* the late Duke) *Fernandipharus*.

The

The greateſt Digreſſions from the Body of *Jupiter*, computed in Semidiameters of the ſame, are as followeth.

Satellites.	1	2	3	4
	3.0	5.0	8.0	12.0
	Sem.	Sem.	Sem.	Sem.

Their Periodical Revolutions are in their ſeveral Orbits, according to *Hevelius*.

Sat.	Days.	Hours	Min.	Sec.
1	1	18	28	00
2	3	13	18	0
3	7	3	57	0
4	16	18	9	0

Their Diurnal and Horary motion in their Orbits, each divided in 360 Deg. according to *Marius*.

1	Diurnal.	Horary.
	Gr. ′ ″	Gr. ′ ″
1	203—25—0	8—28—30
2	101—17—12	4—13—0
3	50—14—57	2— 6—30
4	21—28—48	0—53—42

Of Saturn.

The highest, and of all the Primary Planets (hitherto known) the most remote from the Earth, runs his course above all the rest, and beneath the fixed Stars, and hath little or no Parallax, nor are there any of the fixed Stars or Planets that afford to the observing Eye, by means of the Telescope, such strange and admirable Phenomena.

The chiefest, and most worthy of note, are three.

First, That he appears girdled about with a flat Ring of Light.

Secondly, That he hath several lesser Planets, like the Circum-Jovials, moving about his Body.

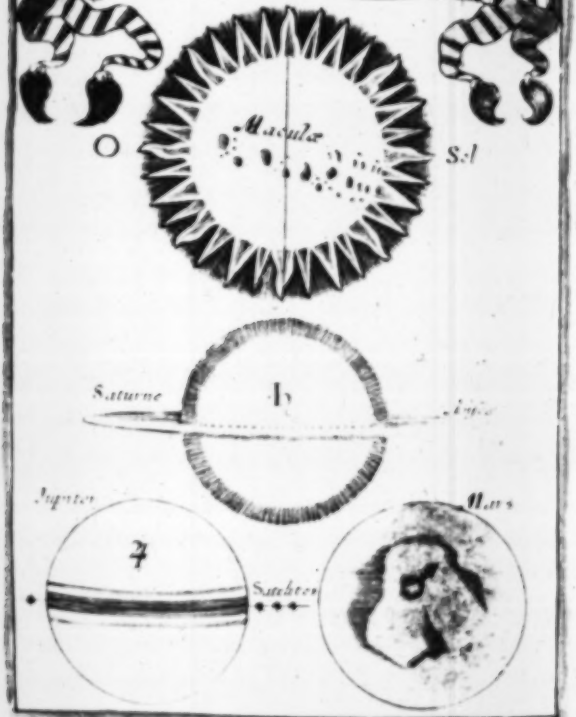
Thirdly, That his Figure appears variously and incredibly diversified, being sometimes beheld in a round form, at other times represented with two Rundles on each side, which at other times alter their Figure, and appear like certain Handles or Ears, like a two ear'd Porringer.

Monsieur *Hugens*, by his Observations of this Planet, hath noted, that the said Ring about the Body of *Saturn* is every way alike distant from it, the plane whereof always keeps in a certain and constant inclination to the Ecliptick, appearing according to its diversity of Aspect, as you may see more plainly in the System of *Saturn* in this Book.

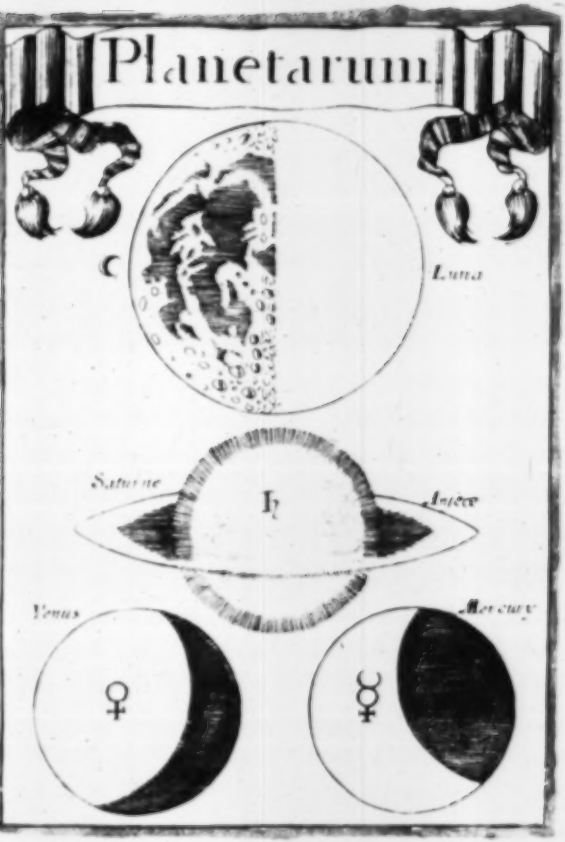
There is also several other Stars, one discovered about his Body by *Hevelius* at *Dantzick*, by Sir *Paul Neal*, and Sir *Christopher Wren*, here in in *England*.

And two others discovered by *Signior Cassini* in the Royal *Parisian* Observatory, the one nearer to his Body than the *Hugenian*, the other removed further

Phases.



Planetarum



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further from him than that. The Revolution of which Interiour Planet he found to be compleated in four Days and a half, the Exterior in something more than 80 Days.

This Planet (as the reſt) may be probably concluded to be compoſed of ſolid and liquid matter, of a Leaden temper and colour; that it is Spherical, but withall full of uneven Aſperities, and that it is an opacous Body, and illuminated *ab extra*, and although the Suns light may approach it, yet it is not ſufficient to give a requiſite luſtre to ſo great and ſo diſtant a Body, but muſt have doubtleſs the aſſiſtance of ſome light from ſome other Fountain. He hath a motion upon his own Center, performed in 29 days 10 hours, 1′ 16″.

A Table of the magnitudes of the Planets, in reſpect to the Earth, according to Hevelius.

Names of the Planets.	Planets diff. from the Earth	Apparent Diameters.		True Diameters.	Circumf. of their Diſque.
	Sem. Ter.	Min.	Sec.	Mil. Ger.	Mil. Ger.
Sol	5176	31	54	41150	129300
Luna	59	30	00	442	1389
Saturnus	49040	00	16	2362	7945
Jupiter	26815	00	18	2054	6455
Mars	7855	00	05	160	503
Venus	5157	00	17	360	1131
Mercurius	5157	00	06	130	490

CHAP.

CHAP. III.

A brief Description of Fiery-Meteors, and Comets.

AS for fiery-Meteors, their place and generation is in the upper, lower, and in the middle Region of the Air, and are *Draco Volans*, *Ignis Fatuus*, *Ignis Lambens*, *Stella Helena*, these have their birth in the lower Region: Those who are in the middle Region, are *Stella Cadens*, *Lancea Ardens*, *Fulmen*, &c. And in the upper Region of the Air, are reckoned *Fax*, *Ignis Perpendicularis*, *Bolis*, *Capra Saltans*, &c. all which arise from Vapours and Exhalations which the Earth continually expires and diffuses round about through its ambient Atmosphere.

Of Comets.

As concerning the matter, place, and efficient cause of Comets, *Astronomers* and *Philosophers* both Ancient and Modern, do much differ in their opinions, some will have them not to be any thing real or distinct from other pre-existant Celestial Bodies, but rather a meer appearance made by the reflection or refraction of the Suns beams.

Others are of opinion that they are fiery-Meteors generated of copious Exhalations from the Earth and Sea, and elevated to the supreme Region of the Air, and hurried about by the swift motion of the *Primum Mobile*,

Mobile, and take fire, and last as long as the sulphery, unctuous, fat matter of which they consist, affords them Fuel to burn or shine.

Others are of opinion, that Comets, if not all, yet for the most part are created by God of nothing, or at least formed of such matter as best pleaseth him, whether Celestial or Elementary, and of such shape and figure as may serve to terrifie or admonish Mankind, and presignify Calamities to ensue.

Of the Tail, Train, or Bush of the Comets.

Aristotle and his followers asserts the Bush or Train of a Comet to be an Exhalation set on fire, and diversified according to the divers disposition of the matter that feeds its flame.

Petrus Apianus makes the Bush of the Comet to be nothing else but the Rays of the Sun, transmitted through the semidiaphonous head thereof, as it were through a Globe of Glass.

Kepler is of opinion, that the Tail of a Comet is only enlightened by the Suns Beams passing through the Body of the Comet, which he imagins to be purely pellucid, yet dense withall.

Galileus supposes the Tail of a Comet to be of its own nature, straight, as being produced by the Suns Beams, but appears to us to be crooked, when near the Horizon, and inclined thereunto, by reason of the refraction of the Species, or of the visual Rays made in the Spherical superficies of the Air, which near the Earth, is filled with gross vapours.

Of

Of the different ſhapes, and forms of Comets, and their Tails.

Some reſembling the form of a round Diſh, or Platter: Of this kind the chief is called *Roſa*, and is of a bright ſhining Silver colour, mixed with Gold or Amber; and ſome of this ſort that are not perfectly round reſembling the form of a Shield.

Others reſembles the form of a Tun, of which there are of divers kinds; ſome of an Oval figure; ſome like a Barrel ſet on one end; ſome inclining and cut ſhort off.

Others reſembles a Horſes Main, not always of the ſame ſhape or figure. Of theſe *Pliny* ſaith, are very ſwift of motion, and turneth round about it ſelf.

Others reſembling burning Lamps or Torches, and are of ſeveral ſhapes; ſometimes their flame or blaze carried upward like a Sword.

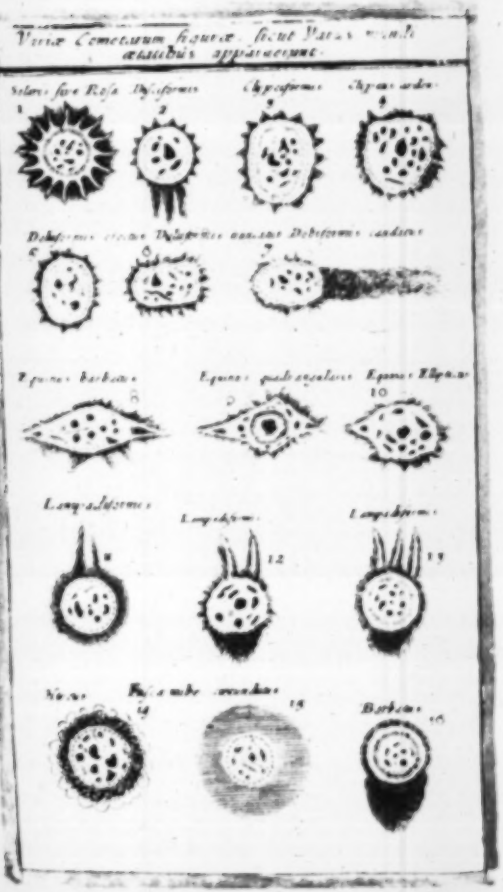
And ſome are formed like a Dart or Javelin.

And ſome like a Cimitar with a Hilt.

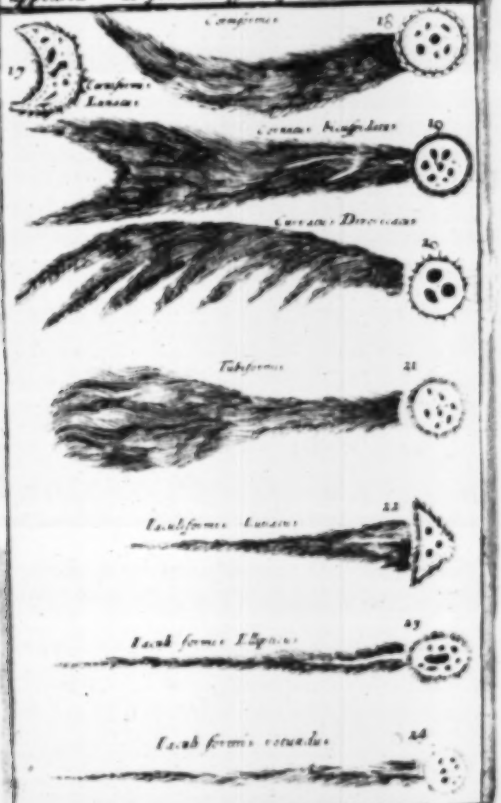
And ſome like a Lance, with its Stream of light, very long, thin, and pointed.

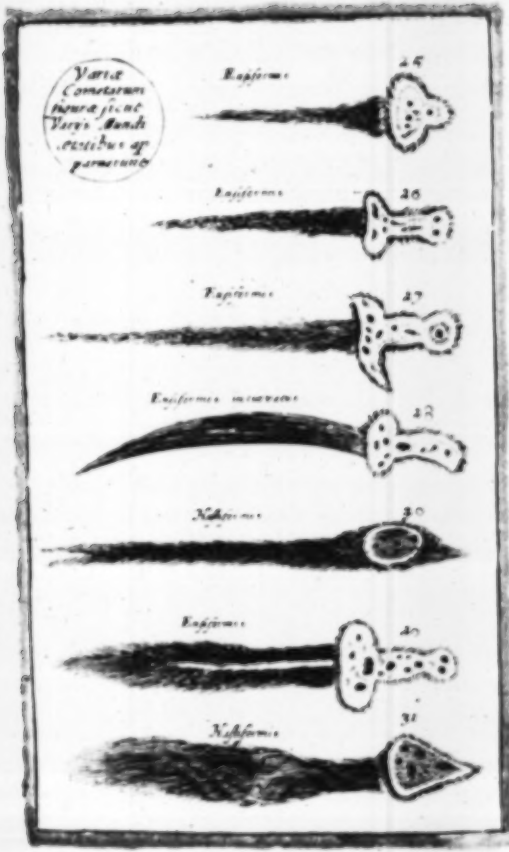
Others whoſe Heads are for the moſt part Quadrangular, having a long Train, very thick and uniform; all theſe will better appear by the ſeveral Schemes hereunto annexed, bearing theſe ſeveral Appellations, 1. *Roſa.* 2. *Pitheus ſive Dolii-formis.* 3. *Hippeus ſeu Equinus.* 4. *Auricomus ſive Argenteicomus.* 5. *Hircus.* 6. *Lampadias.* 7. *Ceratia.* 8. *Ancontia.* 9. *Xiphias.* 10. *Lanchites ſeu Haſti-formis.* 11. *Verus ſeu Pectica.* 12. *Trigonus ſeu Quadratus.*

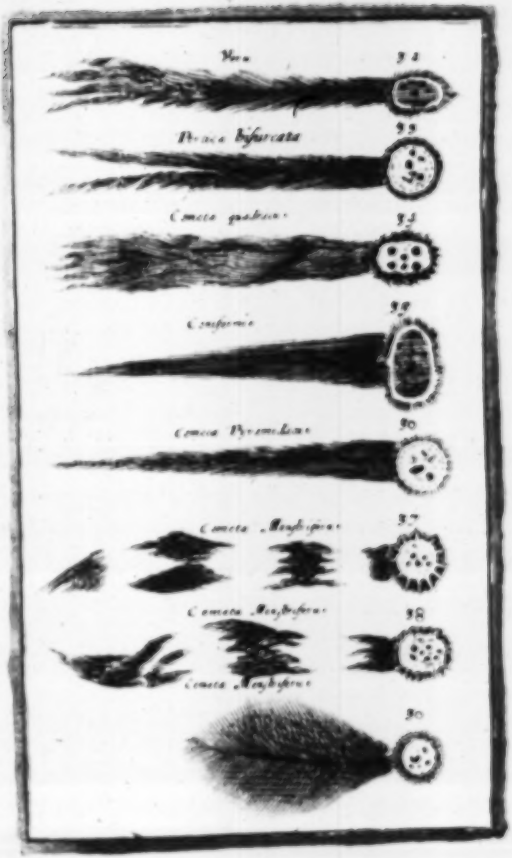
An


Variæ Cometarum figuræ, sicut Varus mundi
ætatibus apparuerunt.
Solaris sive Rosa
Disciformis
Clypeiformis
Clypeus ardens
Dolioformis erectus
Dolioformis nauseans
Dolioformis caudatus
Equinus barbatus
Equinus quadrangularis
Equinus Elliptica
Lampadiformis
Lampadiformis
Lampadiformis
Nucus
Fusca nube circumdatus
Barbatus

The Various formes of Comets as they have appeared in severall ages of the World




Varia Cometarum figura sicut Varijs Mundi aetatibus apparuerunt
Ensiformis
25
Ensiformis
26
Ensiformis
27
Ensiformis incurvatus
28
Nasiformis
30
Ensiformis
29
Nasiformis
31


Vera
34
Peruca bifurcata
33
Cometa quadricus
34
Conformis
35
Cometa Pyramidatus
36
Cometa Monstriferus
37
Cometa Monstriferus
38
Cometa Monstriferus
39

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An account of these splendid Enigma's (viz. the Comets) that have appeared to the World, since the Year of our Lord 1600, *unto the Year* 1679.

IN the Year 1607 appeared a Comet on the 26 Day of *September*, and lasted until the 5*th* of *November*, seen in the Evening about seven of the Clock, and from thence all night. It appeared under the *Great Bear*, a little higher than the Star which is toward the Square, in the 30 Degree of *Leo*, and 36 Deg. of North Latitude, its Parallax not exceeding 3 Deg. and consequent its place was in the highest Heaven or Æther. It moved in direct motion from the former Foot of the *Great Bear* under its Belly, passing by the midst of *Bootes*, and struck the *Serpent* coming under the Hand of *Ophucus*, arrived at his foremost Foot, and slayed in his Leg. The Orbit in which it was carried, seemed to be a greater Circle, at last bowed toward the Ecliptick.

Its Head was not of an equal roundness, but here and there exuberating. Its apparent magnitude greater than any of the fixed Stars, or *Jupiter*. Its light was pale, and watrish, like that of the Moon. Its Tail was somewhat long and thick, projected with some little deviation against that part of the Heaven opposite to the Sun. It appeared like a flaming Lance or Sword, 7 Degrees in length.

The Effects that followed this Comet. The Duke of *Lorrain* died. A great War between the *Swedes* and *Danes*.

In the Year 1618, the 25th of *August* appeared a Comet, and lasted until the 24th of *January* next following, in all 60 Days, appearing about three of the Clock before Sun-rising, a little beneath the left Fore-foot of *Ursa major*, inclining toward the Head of *Leo*, in the 10 Deg. of the said Sign, and in 22 Deg. of North Latitude. It appeared (by the help of the Telescope) to be Hairy, its light not clear, shining but duskish, its magnitude like that of *Venus*, its colour palish. It run from *Scorpio* to the middle of *Cancer*, above one third part of the Heavens, at first Southern, at last Northern. Its Tail was like that of an Ostridge bowed, in length 45 Degrees. In *Persia* it was observed to be like a Cemitar. Its apparent, as well as its true magnitude, was various and unconstant.

The Effects that followed this Comet, was, The death of the Emperor *Matthias*. *Ann* Queen of *England* died, and the Empress of *Germany* also about this time. Many eminent mutations in all parts of *Europe* succeeded this Comet.

In the Year 1647, there appeared a Comet on the 29th of *November*, lasted but two Days, seen in the Evening at half an Hour past eight, in the Constellation of *Coma Berenices*, not quite 5 Degrees from the left Leg of *Bootes*, about 10 Deg. from *Arcturus*, in the eighth Degree of *Libra*, in 26 Deg. of North Latitude. Its motion contrary to the Series of Signs, *viz.* From the Head of *Bootes* toward the Ecliptick, and *Spica Virginis*. It was something less in appearance than *Arcturus*, but sufficiently bright and splendid. Its Tail was erected upwards towards the Zenith, in length 12 Degrees, like to a Broom.

In

In the Year 1652, there appeared a Comet on the 20th of *December*, it lasted while the 10th of *January*, appearing about 6 of the Clock in the Evening, in 9 Deg. of *Gemini*, and 31 Deg. of South Latitude, not far from *Rigal*, in the left Foot of *Orion*. Its motion was constantly Retrograde from South to North, by the *Hare*, foot of *Orion*, to the *Plesades*, and from thence as far as *Perseus*. Its Head was round, and little less than the Moon; its light pale and dull, overcast by a thin Cloud; its magnitude was not always the same. Its Tail at first appeared Eastward opposite from the Sun, resembling a sharp-pointed Cone, in length 7 Degrees, of a whitish but obscure colour. About the 7th of *January* it quite lost its thin Rays, like Hairs; its Tail increased, being at first 3440, at last 165000 German Miles.

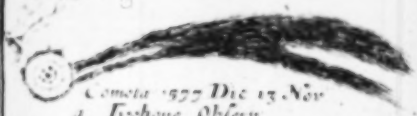
In the Year 1661, there appeared a Comet on the third of *February*, it lasted 53 Days, seen in the Morning 47 Min. after 5 of the Clock, Eastward beneath the *Dolphin*, between the *Eagles-Head* and that of the lesser Horse in 10 Deg. of *Aquarius*, 22 Deg. of North Latitude, in the very Æther or highest Heaven, at first two thousand, at last 9000 Semidiameters of the Earth distant from it, and consequently according to the opinion of *Hevelius* higher than the Sun it self. Its course was from East to West by the Head, Neck, and nether Wing of *Aquila*, in a Line almost parallel to the Ecliptick. Its Head was round, and of a yellowish colour, clear and conspicuous. Its Tail extended about 6 Degrees in length toward the Dolphin, narrower where it joined to the Head, pointing to that part of Heaven opposite to the Sun, but with some kind of deflection.

In the Year 1664, there appeared a Comet on the 14th of *December*, it lasted about three Months, seen at first in the Morning about five of the Clock, afterwards in the Evening, near the Beak of the *Crow*, in 8 Deg. of *Libra*, and 22 Deg. of South Latitude. In the highest Æther its Parallax at the beginning 59″, in the middle 4′, and in the end 16′, so that at first it was 3500, then 1000, and at least 120000 Semidiameters of the Earth distant from the Terrestrial Globe, and higher than *Mars*. Its motion was Retrograde from *Corvus* by *Hydra*, *Argus*, *Canis major*, *Hare*, *Eridanus*, and *Whales-Head* unto *Aries*, its course somewhat deflecting from a great Circle, it ran through more than five Signs of the *Zodiack*, viz. *Libra*, *Virgo*, *Leo*, *Cancer*, *Gemini*, *Taurus*, even unto *Aries*, and in its Progress ran 154 Degrees. Its Head was very conspicuous, somewhat yellow, in the midst thereof was discern'd a clear light surrounded with another more obscure. Its Tail extended 14 Deg. in length, sometimes longer, sometimes shorter, always extended to that part of Heaven opposite to the Sun, yet with some deviation, sometimes Northward, sometimes Southward. Towards its end it was sometimes quite lost, and then again recovered.

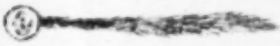
In the Year 1665, there apeared a Comet on the sixth of *April*, lasted 14 Days, seen in the Morning half an hour after one, in the Breast of *Pegasus*, in 15 Deg. of *Pisces*, and 27 Deg. of North Latitude; Its Parallax at the beginning was found to be 69″, which decreased successive to 41″, whence its distance from the Earth then 3000 Semidiameters of the same, towards the end 5000, consequently 60 times higher than

&c.

Figuræ variorum qui annis his infra.



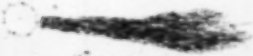
Cometa 1577 Dic 13 Nov
a Tychone Observv.



Cometa 1590

Cometa 1607

Cometa 1618 Dic. 1 Dec



Cometa 1647

cometarum.

nominatis apparuerunt.

Cometa 1652

Cometa 1672

Cometa 1661

Cometa 1664. 1665

Cometa 1677

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than the Moon at first, and at last equal to the height of the Sun it self. Its progress was by *Pegasus*, under the Head of *Andromeda*, by the Northern Fish, as far as unto *Aries*, in a motion continually direct. At the beginning it ran through in one Day, 4 Deg. 6 Minutes, and at last 2 Deg. 23 Minutes. Its Head was round of a yellowish colour, it's light, quick, and bright; in the very middle was a Nocleus of a conspicuous magnitude, of a Gold colour, encompassed equally about with another thinner kind of matter. The apparent Diameter of the Head, was 6 Min. Its Tail at the beginning extended almost 17 Deg. in length, projected between the Mouth and the foremost Foot of *Pegasus* Westward: Where it issued from the Head it was thick and lucid, and of the same dense matter with that of the Head, but toward the end or Cuspis more thin and dilute. It stretched sometimes in length to 25 Deg. streaming to the part opposed to the Sun, yet with some little deviation Southward.

In the Year 1668, there appeared a Comet the *5th* and *10th* of *March*, observed by *Signior Cassini*, at *Bologna*. About the first Hour of the Night (after the *Italian* Computation) the Head or Body was not seen, being hid under the Horizon. The Tail was of a stupendious length, being extended (as it appeared at *Lisbon* in *Portugal*) over almost the fourth part of the Visible Heaven from West to East, from the *Whale* through *Eridanus* to the Star that precedes the Ear of *Lupus*.

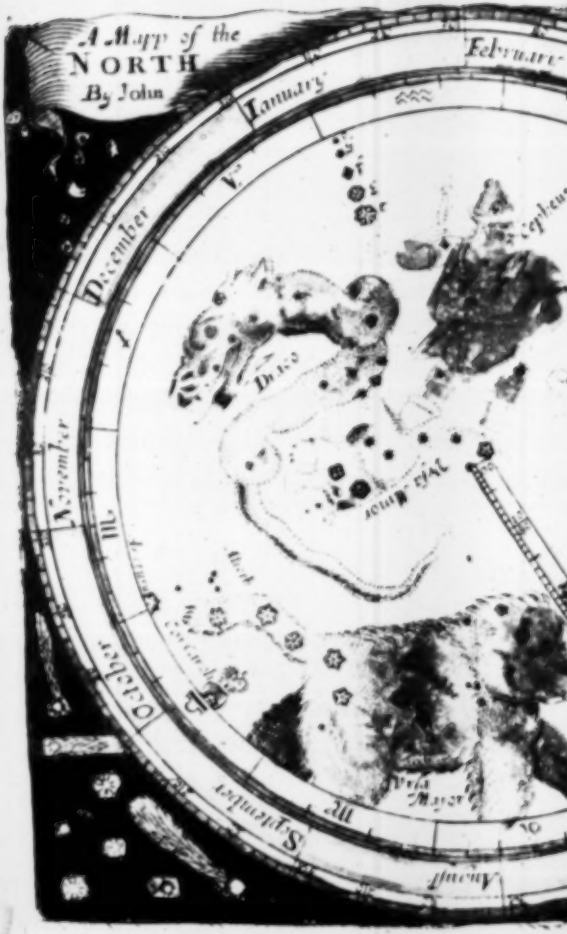
In the Year 1672, there appeared a Comet on the second of *March*, lasted till about the end of *April*, (as *Signior Cassini* computed) seen both Mornings and

and Evenings, at first between the Head of *Medusa* and the *Pleiades*, afterwards having continued its course towards the Root of the Southern-Horn of *Taurus*, and having passed the Ecliptick, went on above the top of *Orion*'s Head to the Milky way. Its greatest declination from the Equator Northward, was 38 Deg. and a half. He made 2 Deg. 32′ of motion in one Day. In the great Circle of its apparent motion, its Head appeared in the Telescope almost round. The Tail was almost imperceptible, and appeared of the length of two Diameters of the Head, or thereabouts, not above 3 or 4 Min. of a Degree.

In the Year 1677, there appeared a Comet, which rose on the 21 of *April*, about 2 in the Morning, near N. E. by N. It had a short bushy Tail about 5 Degrees in length, (to appearance about 2 Yards) pointing towards the right Foot of *Andromeda*. The Head of the Comet was of a pale colour, as big as a Star of the first Magnitude, and was in the Longitude of 11° of *Taurus*, and in the Latitude 18 Deg. N°. On the 23 of *April* the same Comet rose after 2 in the Morning, the Tail streaming towards the Star, in the Knee of *Cassiopea*, and being in Longitude 15 Degrees of *Taurus*, and in Latitude 17 Degrees Northerly.

Of the fixed Stars.

THese Stars are said to be fixed, because they always keep (at least seemingly) the same invariable distance from one another, and from the Ecliptick, as if they were so many Studs of Gold fixed


A Mapp of the
NORTH
By John
Februari
Ianuary
December
November
October
September
Draco
Vela Amor
Vela Major

Constellations about
POLE
Seller
March
April
May
Iulie
Iuly
Cepheus
Perseus

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fixed in the Cryſtal Firmament, and for this reaſon *Riccioluſ* conceives, the multitude of the fixed Stars (as it were an Army drawn up in Battel Array) might fitly be called the *Militia* of Heaven, and the enquiries touching theſe glorious and ſplendid Bodies under theſe following Heads,

First, Their Subſtance.
Secondly, Their Light, Colour, and Scintillation.
Thirdly, Their Number.
Fourthly, Their Figure.
Fifthly, Their Magnitude.
Sixthly, Their Place and Diſtance from the Earth, or rather the Sun.

Of their Subſtance.

As to their Subſtance, the opinions of the Ancients are various: Some hold them to be of a fiery nature, others hold them to be Earthly, yet withall fiery; others conceive them to be compoſed of the ſame matter as Exhalations and Vapours, and conſequently to conſiſt of a ſubſtance, partly Aqueous, partly Aireal. But according to the Sentiments of divers Eminent Modern *Philoſophers* and *Aſtronomers*, ſuppoſeth that their Bodies are compound and not ſimple, made up of Elementary matter, formed into fiery Globes, and conſiſting of matter both ſolid and liquid, as this Terraqueous-Globe of ours, and conſequently ſubject to corruption and alteration.

Of their Light.

As to their Light, that which is to be conſidered is, whether

whether it be innate or borrowed of the Sun: the latter of which is maintained by *Albitegnius*, and by divers other *Philosophers* and *Astronomers*, and may reasonably be supposed that each of the fixed Stars to be a head or distinct part of the *Mundan* system; and as the Sun hath several Planets constituted and carried about him, so likewise every one of the fixed Stars hath other *Mundan*-Bodies, like Planets, disposed and moving about them, though not to be discerned by us, by reason of their great distance from our Earthly habitation.

Of their Colour.

The colour is visibly various according to the difference of their light, tempered by the divers constitutions of their matter or substance, some appearing of a ruddy, others of a Gold Colour; some of a Silver white, some pallid, others of a Leaden hue; whence some have made an estimate of their natures, and ranged them under the several Planets, of whose qualities they conceived them to participate according to proportion they carry of the resemblance of their Colours.

Of their Scintillation.

In this they are particularly distinguished from the Planets, for the Planets have no such twinkling or glimmering light, but generally all the fixed Stars, more or less, and at sometimes more than at others, especially when the Wind blows Easterly. The cause of this their Scintillation is variously discoursed of by *Philosophers* and *Astronomers*. *Aristotle* among the Ancients assigns the cause thereof to their remoteness from

from our ſight, by which they are weakly, and as it were by a trembling wearineſs reached. But others aſſign the cauſe thereof only to Refraction; and therefore (ſay they) *Syrius* and *Procyon* twinkle or glimmer more than any of the reſt, becauſe they never aſcend above 45 Deg. above the Horizon. *Gaſſendus* more probably conceives this twinkling of the fixed Stars from that native light they are endued with, like that of the Sun, ſparkling and caſting forth ſuch quick darted Rays, as our weaker ſight cannot behold without that trembling paſſion. To which may be added the quick and ſwift motion of their about their own Axis, by that means making a more ſudden variation in thoſe radiant Objects than the Eye can purſue: But *Hevelius* rather imputes their twinkling to a conſtant Eribration of lucid matter, or a continual Exſpiration of fiery Vapours or Effluvia from their Celeſtial Bodies, in the ſame manner as the Fulgorations and Ebulitions in the Body of the Sun.

Of their Number.

As to their number, if we conſider them, which are moſt notable and viſible, as being reduced to the ſix vulgar degrees of Magnitude, we ſhall find them (according to *Ptolomy*'s computation) to amount to but 1022. And *Pliny* reckons them to 1600. But if we reflect upon the abſolute number of all the Stars in the Firmament, we may conclude them to be innumerable, at leaſt by Humane calculation, either lookt upon by the bare Eye only, or by the help of a Teleſcope, by the means of which laſt, *Galileus* reports that he diſcovered in the Aſteriſm of the *Pleiades* above 40 Stars, in the ſpace between the Girdle and Sword of *Orion* no fewer than 80, and in little

more than one Degree's space in the constellation of *Orion* above 500 Stars. Another great *Astronomer* affirms, that in the same Constellation, he observed above 2000 Stars. And according to the proportion of *Galileo*'s Observation, there would be found at least 62500 Stars, whereas look'd upon by the bare Eye only, there appears not above 63: According to the same proportion, if the rest of the Constellations were examin'd, the difference computed of the number of the Stars, appearing by the Telescope over and above those discovered by the bare Eye, there might be reckoned above 1000000 Stars.

Of their Figures.

As to their Figure, they are apparently spherical or round. But *Kepler* describes them like so many lucid points or sparks, casting forth every way their Rays of Light, so that we may apprehend them to be only Physically round, not Mathematically such, their Superficies are found to be uneven, and to consist of many angles and sides.

Of their Magnitude.

As to their Magnitude, These following Tables will give account thereof, according to the divers Calculations made by several eminent *Astronomers*.

1. *Table*

1. *Table of the apparent Diameters of the fixed Stars.*

Their several Magnitudes.	1	2	3	4	5	6
According to *Tycho, Longo, Blanc.*	′ ″ 2 . 0	′ ″ 1.30	′ ″ 1 . 5	′ ″ 0.45	′ ″ 0.30	′ ″ 0.20

2. *Table of the true Diameters of the fixed Stars, and how many Diameters of the Earth each contains.*

Their several Magnitudes.	1	2	3	4	5	6
According to *Tycho.*	4.1 $\frac{1}{3}$	3. $\frac{1}{16}$	2 . $\frac{1}{2}$	1. $\frac{19}{36}$	1. $\frac{1}{48}$	0. $\frac{1}{2}$

3. *Table of the Solidity of the fixed Stars to that of the Earth.*

Their several Magnitudes.	1	2	3	4	5	6
According to *Tycho, Boyer.*	as to 68.1	as to 28 $\frac{1}{2}$ 1	as to 11.1	as to 41.1	as to 1 . $\frac{1}{16}$	as to $\frac{1}{2}$. 1

4. *Table from the Obſervations of* Ricciolus, *ſhewing as well their apparent Magnitudes as their true Magnitudes, deduced from their undermentioned ſuppoſed Diſtances from the Earth.*

Degrees of Magnitude.	Names of the Stars of their ſeveral Degrees of Magnitude.	Apparent Diameter.	The greateſt Diſtance of 210000 Semidiameters of the Earth.		The leaſt Diſtance of 100000 Semidiameters of the Earth.	
			True Diam. contains the Earths Diam.	The Body contains the Earths Body.	True Diam. contains the Earths Diam.	The Body contains the Earths Body.
		″ ‴				
1	*Arcturus*	16.42	16 $\frac{1}{3}$	3932	8 . 0	512
2	*Aquila*	11.00	11 . 0	1120	5 . $\frac{7}{23}$	137
3	*Algol*	7 . 37	7 . 3	260	3 . $\frac{4}{5}$	34
4	*Procyon*	6 . 10	6 . 10	216	2 $\frac{9}{10}$	26
5	*Pleias*	4 $\frac{4}{5}$	4 . $\frac{4}{5}$	92	2 $\frac{7}{10}$	18
6	*Alcor*	4 0	4 . 0	64	2 . $\frac{25}{100}$	9

But ſeeing the *Aſtronomers of* the *Copernican* opinion, maintain the Magnitudes of the fixed Stars to be far greater than the former Table ſhews them to be, it will not be amiſs to annex this following Table.

5. *Table*

5. *Table shewing the true magnitude of the fixed Stars, that is; one of the greatest, and one of the least*, viz. Sirius, *and* Alcor, *supposing the apparent Diameter of* Sirius *to be* 18″, *of* Alcor 4″, *according to the distance in the* Copernican *Hypotheſis, maintaining the Parallax made by the Earths motion, not to exceed* 10″, *and imagining the Diameter of the Annual Orb to be ſuch as upon theſe Principles it is ſtated to be, according to* Kepler.

The diſtances to be aſſigned in	The true Magnitude of *Sirius*.		The true Diameter of *Alcor*.	
Semidiameters of the Earth	The Diam. of *Sirius* contains Diam. of the Earth.	The Body of *Sirius* contains the Earths Body.	The Diam. of *Alcor* contains Diam of the Earth	its Body contains the Earths Body.
142 . 746 . 418	12550	1967567310000	6020	21600000000

Theſe Magnitudes may ſeem by ſome to be exorbitant, but in the opinion of the Judicious, do appear to be rational.

Of the place and diſtance of the Stars from the Earth, (or rather the Sun,) ſeems to be a queſtion of that difficulty, that *Ulug* pronounced the inveſtigation thereof to be no leſs than a piece of madneſs: Therefore *Riccioleus* treating upon this ſubject, thought

thought fit in the Front of his Discourse to prefix this Theorem, as a most certain truth, *Parallaxis & distantia fixarum non potest certa & evidenta observatione humanitus comprehendi.*

For it is not known whether the Stars are all in the same Spherical Superficies, equally distant from the Center of the World, or whether they are placed at unequal distances, some higher, and some lower. This latter was the sentiment of the Ancient Stoical *Philosophers*, who conceived the difference of their lustre and apparent Magnitudes, to proceed from their diversity of scituation, as more or less removed from our sight.

Of this opinion was *Manilius*, long since, declared, speaking of some Stars in *Orion*, appearing more obscure than the rest. He gives the reason of that Phenomenon to be, *Non quod clara minus, sed quod magis alta recedunt.* This Hypothesis so seemingly rational, that the famous *Tycho*, *Gallileo*, and *Kepler* have readily imbraced the same, and therefore it may reasonably be supposed, that their distances are as divers as those of the Planets. *Riccolus* reckons up five manner of ways of attaining in some probability the knowledge of their immense distances, according to his computation the least distance that may be affigned, is found to amount to 210000 Semidiameters of the Earth, the greatest being altogether uncertain by reason the craffitude or profundity of their Heaven is not to be determined. The Horizontal Parallax of the fixed Stars according to their least distances, is but 1″.

The

The diſtance of the fixed Stars aſſerted by the Copernicans.

Authors.	Semidiameters of the Earth.	The greateſt Parallax of the fixed Stars made from the Annual motion of the Earth.	
		The half from the Semidiameter.	The whole from the Diameter of the Annual Orb
		′ ″	′ ″
Copernicus	Indefinite	* *	* *
Galileus	13.046.400	0 20	0 40

The diſtance of the fixed Stars, ſuppoſing the Earths Annual motion, and *Copernicans* diſtance of the Earth from the Sun, according to the calculations of *Tycho* and *Maginus*, 7850,000 Semidiamiters of the Earth, and the total Parallax of the fixed Stars 1′—00″.

The diſtance of the fixed Stars from the Earth, ſuppoſing the Earths motion and the greateſt Parallax of the fixed Stars to be 10″. The diſtance of the Stars from the Earth in Semidiameters of the Earth, according to *Copernicus*, is 47.439.800; and the diſtance of the Sun from the Earth, is 1150 Semidiameters of the Earth.

Of

Of the proper motion of the fixed Stars.

THe motion of the fixed Stars is twofold:

First, Their Circumrotation about their own Centers, termed *Motus Vertigenus*, in which they are carried about with extraordinary celerity; whence the reason in part is the cause of their Scintillation.

The second is, Their motion of Revolution from West to East, in which they are observed to move but very slowly. Touching this, it will not be amiss to insert the three following Conclusions of *Riccioli* in his *Astronom. Reformat.* pag. 259, quoted by Esquire *Sherborn*, in the Sphere of *Manilius*.

1. That the motion of the fixed Stars is equal and uniform.

2. That their Annual motion is not less than 49″, not greater than 51″.

3. That it seems most probable that their Annual motion is 50″—40″.

From the supposition of their Annual motion of 50″—40″, it follows that they compleat not one Degree in the Ecliptick sooner than in 71 Years, and $\frac{1}{10}$ or 19 Days, and 12 Hours in a manner; but the whole Circle of 360 Degrees, they run not through in less than 25579 Sidereal Years, which is the *Annus Magnus Platonicus*, (though by the Ancients computed to extend to no less than 36000 Years.) But this will be clearly manifested by this following Table.

A Table of the motion of the fixed Stars in Longitude.

Years.	′	″	‴	
1	0	50	40	
10	8	26	40	
20	16	53	20	
30	25	20	00	
40	33	46	40	
50	42	13	20	
60	50	40	00	
	Gr.	′	″	‴
70	0	59	06	40
80	1	07	33	20
90	1	16	00	00
100	1	24	26	40
1000	14	04	26	40
10000	140	44	26	40
25000	360	00	00	00

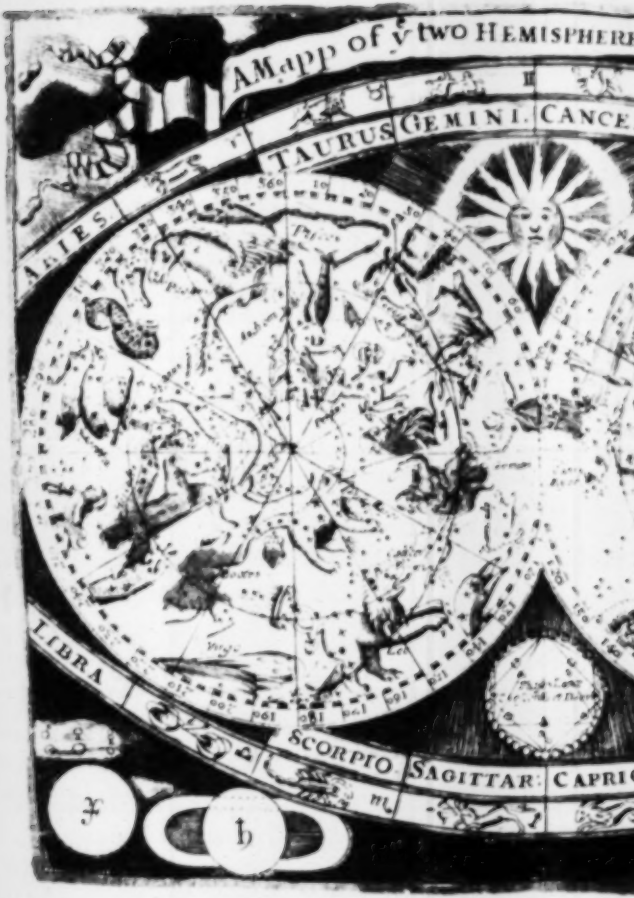
Of the two Hemiſpheres of the Heavens.

THe one ſhews the Conſtellations of the Northern, and the other of the Southern Hemiſpheres of the Heavens: Wherein may be ſeen the right Aſcenſion and Declination of any of the Stars in either Hemiſphere, by which any Star may be eaſily found, and the way or courſe of a new Star or Comet may be traced in its way or Orbit, with ſeveral other uſes, &c.

The names of each Conſtellation, and the number of the Stars in each of them that are obſerved by the bare Eye, without the help of a Teleſcope, according to Bayerus, *and others.*

The Northern Signs of the Zodiack.		*The Southern Signs of the Zodiack.*	
1 Aries	29	7 Libra	15
2 Taurus	48	8 Scorpio	29
3 Gemini	31	9 Sagittarius	31
4 Cancer	35	10 Capricornus	29
5 Leo	43	11 Aquarius	41
6 Virgo	42	12 Piſces.	37

The


A Mapp of ye two HEMISPHERE
ARIES
TAURUS
GEMINI
CANCE
LIBRA
SCORPIO
SAGITTAR
CAPRI

PHERES of ye Heaven
ANCER.
LEO
VIRGO
PISCES
APRICOR
AQUARI

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The Northern Conſtellations.	
1 Urſa minor	8
2 Urſa major	32
3 Draco	33
4 Cepheus	17
5 Bootes	34
6 Corona	20
7 Hercules	48
8 Lyra	13
9 Cygnus	35
10 Caſſiopea	25
11 Perſeus	38
12 Auriga	32

The Northern Conſtellations.	
13 Ophuchus	30
14 Serpens	37
15 Sagitta	8
16 Aquila	32
17 Antinous	7
18 Delphinus	10
19 Equiculus	4
20 Pegaſus	20
21 Andromeda	26
22 Triangulum	5
23 Coma Berenic.	14

The Southern Conſtellations.	
1 Cetus	27
2 Orion	49
3 Eridanus	42
4 Lepus	13
5 Canis major	19
6 Canis minor	8
7 Argo Navis	63
8 Centaurus	40
9 Lupus	20
10 Hydra	29
11 Crater	11
12 Corvus	7
13 Ara	8
14 Corona Auſtr.	13

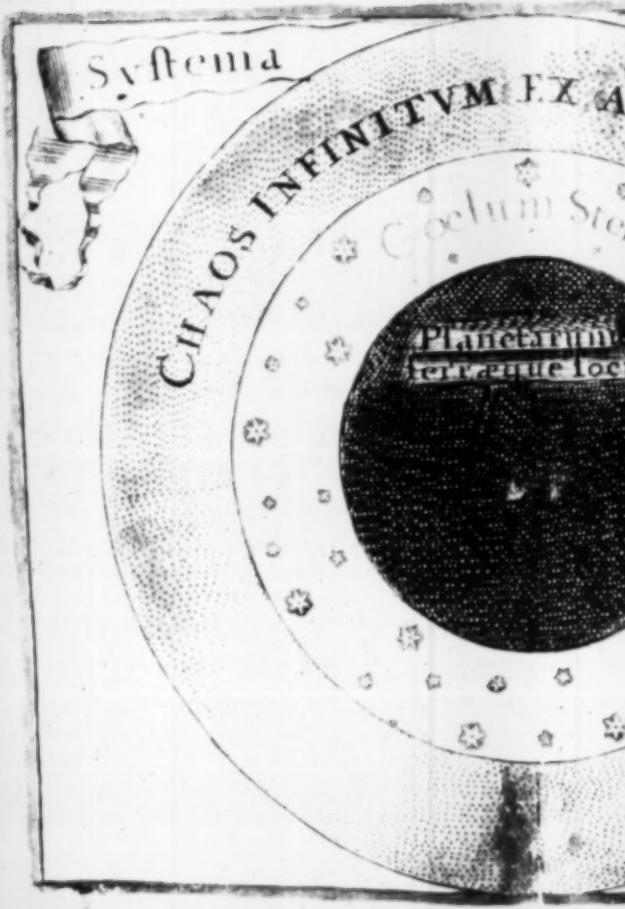
The Southern Conſtellations.	
15 Piſces Notius	12
16 Grus	13
17 Phenix	14
18 Indus	12
19 Pavo	16
20 Apus	12
21 Apis	4
22 Cameleon	8
23 Triangul Auſt.	5
24 Piſcis volans	7
25 Dorado	7
26 Toucan	8
27 Hydrus.	15
28 Robur Carol.	12

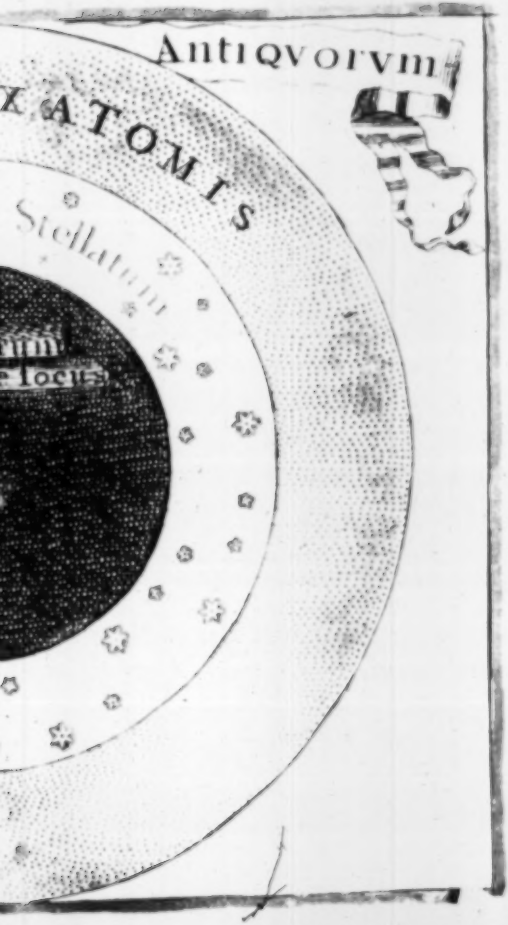
The Total of the number of the fixed Stars of the several Magnitudes.

	1	17
	2	63
	3	196
	4	415
	5	348
	6	341
Obscure and Nebulous.		3
Informe of Sporades.	in the Zodiack.	45
Northern		200
Southern		93
		1802

Of the Syſtem of the Ancients.

THe Ancient Philoſophers (eſpecially theſe of *Democritus* School) and moſt of the Mathematicians of thoſe times, aſſerted the Univerſe to be Infinite, and to be divided into two chief Portions: whereof they held one to be the World or Worlds finite as to bulk and dimenſions, but infinite as to number. The other part or portion they extended beyond the Worlds, which they fancied to be a Congeries of Infinite Atoms, out of which, not only the Worlds already made received their ſuſtenance, but new


Syſtema
CHAOS INFINITVM EX A
Cœlum Ste
Planetarum
terræque loc


Antiqvorvm
X ATOMIS
Stellarum

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new ones were produced: Which Cosmical System imagined by the Ancients, is thus described, as may be seen in the said System. First, The place of the Planets and the Earth: Then the Starry Firmament, marked A, B, C, D, imbracing within its Circumference the Planetary and Elementary System, beyond which a certain infinite Chaos of Atoms, in which this World of ours is supposed to float, which Scheme is taken from *Scheuterus*.

A Description of the Material Sphere.

The Poles of the World are two fixed Points in the Heavens, Diametrically opposite to one another; the one visible in our Hemisphere called the Artick Pole; the other not seen of us, being in the lower Hemisphere, called the South or Antartick Pole.

The Axis of the World is an imaginary Line drawn from Pole to Pole, about which the Diurnal motion is performed from East to West.

The Meridians are great Circles, concurring and intersecting one another in the Poles of the World.

The Equinoctial is a great Circle, 90 Degrees distant from the Poles of the World, cutting the Meridians at right Angles, and dividing the World into two equal parts, called the North and South Hemisphere.

The Zodiack is a Zone, having eight Degrees on either side of the Ecliptick, in which space the Planets make their Revolutions, divided and distinguished into 12 Signs, 30 Degrees to each Sign; as, *Aries Taurus, Gemini, Cancer, Leo, Virgo*, which are called the Northern Signs. *Libra, Scorpio, Sagittarius, Aquarius, Pisces*, called the Southern Signs.

The

The Ecliptick is a Circle in the midſt of the Zodiack, touching the Equinoctial in two oppoſite poins of *Aries* and *Libra*.

The Colures are two Meridians dividing the Equinoctial and Ecliptick into two equal parts; one of theſe paſſes the Equinoctial points of *Aries* and *Libra*, and is called the Equinoctial Colure; the other by *Cancer* and *Capricorn*, called the Solſtitial Colure.

The Poles of the Ecliptick are two points 23 Deg. 30 Min. diſtant from the Poles of the World.

The Tropicks are two ſmall Circles parallel to the Equinoctial, and diſtant therefrom 23 Deg. 30 Min. limiting the Suns greateſt Declination.

The Northern Tropick is call'd the Tropick of *Cancer*, the Southern the Tropick of *Capricorn*.

The Polar Circles are two ſmall Circles, parallel to the Equinoctial, and are diſtant from the Pole of the World 23 Deg. 30 Min.

That which is adjacent is called the Artick Circle, and the other the Antartick Circle.

The Zenith and Nadir are two Points Diametrically oppoſite.

The Zenith is the vertical Point, or the Point right over our heads.

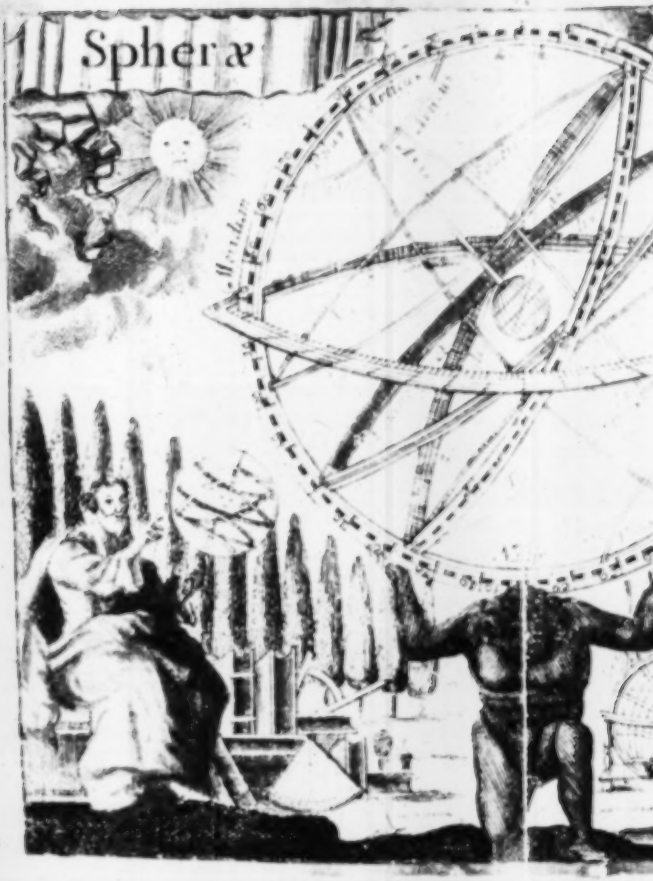
The Nadir is directly oppoſite thereto.

The Horizon is a great Circle, 90 Deg. diſtant from the Zenith and Nadir, dividing the World into two equal parts, the upper and viſible Hemiſphere, and the lower and inviſible.

Aſtronomical Definitions.

The Meridian of a place, is that which paſſeth by the Zenith and Nadir of the place.

Azimuths


Sphera

Materialis

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Azimuths or Vertical Circles are great Circles of the Sphere, concurring and interſecting each other in the Zenith and Nadir.

Almicanters or Parallels of Latitude, are ſmall Circles parallel to the Horizon, imagined to paſs through every Degree and Minute of the Meridian, between the Zenith and Horizon.

Parallels of Latitude or Declination, are ſmall Circles parallels to the Equinoctial, they are called Parallels of Declination, in reſpect of the Sun or Stars in the Heavens, and Parallels of Latitude, in reſpect of any place upon the Earth.

The Latitude of a place is the height of the Pole above the Horizon, or the diſtance between the Zenith and Equinoctial.

The Latitude of a Star is the Arch of a Circle, contained between the Center of a Star and the Ecliptick Line, making right Angles with the Ecliptick, and is counted either Northward or Southward, according to the ſcituation of the Star.

Longitude on the Earth, is meaſured by an Arch of the Equinoctial, contained between the Primary Meridian (or Meridian of that place where the Longitude is aſſigned to begin,) and the Meridian of any other place counted always Eaſterly.

The Longitude of a Star, is that part of the Ecliptick, which is contained between the Stars place in the Ecliptick and the beginning of *Aries*, counting them according to the ſucceſſion of the Signs.

Altitude of the Sun or Stars is the Arch of an Azimuth, contained betwixt the Horizon and Center of the Sun or Star.

Aſcenſion is the riſing of any Star or any part of the Equinoctial above the Horizon.

Deſcenſion is the ſetting thereof.

Right

Right Aſcenſion is the number of Degrees and Minutes of the Equinoctial (counted from the beginning of *Aries*,) which cometh to the Meridian with the Sun or Stars, or with any portion of the Ecliptick.

Oblique Aſcenſion is an Arch of the Equinoctial, between the beginning of *Aries* and that part of the Equinoctial that riſeth with the Center of a Star, or with any portion of the Ecliptick in an Oblique Sphere.

Oblique Deſcenſion, is that part of the Equinoctial which ſetteth therewith.

Aſcenſional Difference is an Arch of the Equinoctial, being the difference between the right and oblique Aſcenſion.

The Amplitude of the Sun or Star is an Arch of the Horizon, intercepted between the riſing or ſetting of the Sun or Star, and the Eaſt or Weſt point of the Hozizon

The Parallax is the difference between the true and apparent place of the Sun or Star.

Refraction is cauſed by the Atmoſphere, or vaporous thickneſs of the Air, near the Earths Superficies, whereby the Sun and Stars ſeem always to riſe ſooner and ſet later, than in reality they do.

The Uſe of the Table of New and Full Moons.

On the left ſide of the Table you have each Month in the Year; and on the head of the Table you have the Years of our Lord, and the Characters of the New and Full Moons; the New Moon is thus expreſt ●, the Full Moon thus ○. The Uſe of which Table will appear plainly by this Example.

I would know the time of the New and Full Moon; for

This Table readily sheweth the exact Age of the Moon for every day in the year, and her true Age for Eclesiastical years

	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○
Janu	1	27	2	10	21	5	9	23	28	13	17	3	6	23	24	10				
Feb	11	20	0	15	19	4	8	22	27	11	15	1	5	20	25	9				
Mar	12	23	27	17	20	5	9	24	28	13	18	2	6	21	24	10				
Apr	11	25	29	15	18	3	8	22	27	11	15	30	4	19	23	9				
May	1	25	29	15	18	3	7	22	26	11	15	30	4	18	23	3				
June	9	24	27	14	16	2	6	20	25	0	14	28	3	17	21	8				
July	8	23	27	13	15	31	6	19	24	9	14	28	2	16	21	6				
Augu	7	22	26	11	14	29	5	18	22	8	12	26	30	14	19	4				
Sept	6	20	24	10	12	27	3	17	21	6	10	25	29	13	18	2				
Octo	5	19	23	9	13	27	3	17	21	6	10	24	28	13	17	2				
Nove	4	18	23	7	11	26	2	15	20	5	9	23	26	12	16	1				
Decem	3	17	22	7	11	25	29	15	18	4	8	23	26	11	15	30				

Fig. II.

...f New and full Moons as likewise ...

...years to come from the year 1678 to 1692

| | | |

A Table shewing ye Dominical letter Cycle
golden Number for 50 years from the

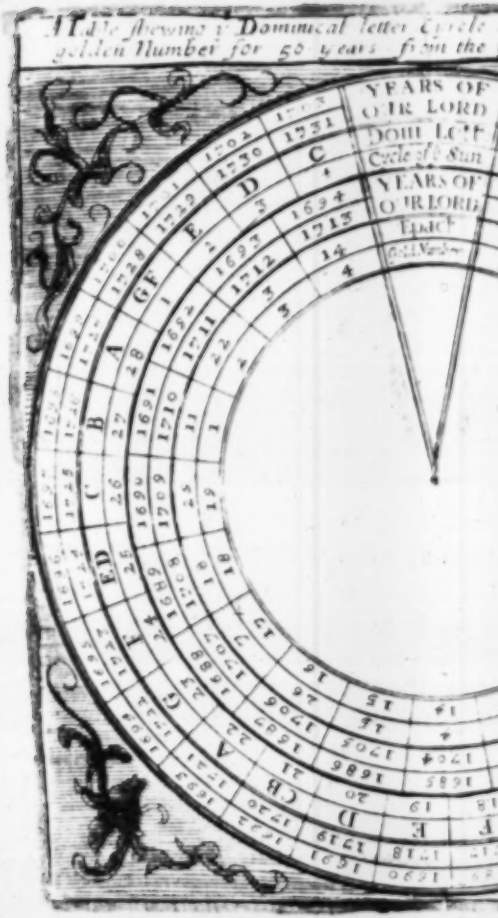

Fig. I
1681 1682 1683 1684
1709 1710 1711 1712
B A G FE
DC 10 11 12 13
E 9 1679 1680 1681 D
F 8 1678 1698 1699 1700 C
G 7 1677 1697 28 9 40 B
6 1676 1696 27 8 9 10 AG
5 1675 1695 26 7 8 9 F
4 1674 1694 25 6 7 8 E
3 1673 1693 24 5 6 7 D
2 1672 1692 23 4 5 6 C
1 1671 1691 22 3 4 5 B
1670 1690 21 2 3 4 A
1689 20 1 2 3 G
1688 19 18 1 2 F
1687 18 17 16 1 E
1686 17 16 15 14 D
1685 16 15 14 13 C
1684 15 14 13 12 B
1683 14 13 12 11 A
1682 13 12 11 10 9 8 7 6 5 4 3 2 1

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for the Year 1680, therefore look at the head of the Table, and on the left side for the Month of *May*, and in the common Angle of meeting you will find that is New Moon the 18th Day, and Full Moon the 31 Day; so from the Full and Change you may compute any other Day of her Age. And if you would know the time of High Water at *London*, (or any other place contained in the Table) then look the day of her Age on the left side of the Table, (as you are before directed) and right against it you will find the time of High Water.

The Use of the Circular Table, marked at the Corner with the Figure 1.

This Table sheweth the Dominical Letter, Cycle of the Sun, Epact, and Golden Number, for 56 Years, from the Year 1676.

For finding the Dominical Letter, and Cycle of the Sun, you are first to seek the Year of the Lord in the two outermost Circles; and in the two next Circles within those Circles, you have the Dominical Letter, and the number of the Suns Cycle.

For Example.

If you would know, in the Years 1700, and 1728, what the Dominical Letter, and Cycle of the Sun is; you will find the Dominical Letter to be G F, which doth denote it to be Leap-Year, and the Cycle of the Sun to be 1. And if you would find the Epact, and Golden Number, for any Year contained in the Table, then find the Years required in the 5th and 6th Circle, and in the Innermost Circles you will have your desire; as for the Years 1681, and 1700, you will find the Epact to be 2, and the Golden Number to be 10.

And here I think it neceſſary to ſhew the natural reaſon of theſe Numbers and Letters.

Of the Prime, or Golden Number.

The Prime, or Golden Number, is a Circle, or Revolution of 19 Years; in which ſpace of time it was ſuppoſed by the Ancients, that all the Lunations and Aſpects between the Sun and Moon, did return to the ſame place they were 19 Years before: It is chiefly to find the Change, Full, and Quarters of the Moon.

Of the Cycle of the Sun, and Dominical Letter.

The Cycle, or Circle of the Sun, is a Revolutional Number of 28 Years; in which ſpace of time there is a perfect change of all the Sunday Letters for every Year, and maketh its Periodical Revolution in 28 Years. By help of which is known the true order of the Sunday Letter, A, being placed againſt the firſt day of *January*, and the reſt in their order to the Years end: And every Month beginneth the firſt Letter of each word in this ſhort Diſtich;

At Dover *Dwells* George Brown *Eſquire*,
Good Chriſtopher Finch, *And* David Frier.

Of the Epact.

The Epact is a Number not exceeding 30, becauſe the Moon, between Change and Change, never exceeds 30 Days; and thereby the common Lunar Year, conſiſting of 12 Months, is leſs than the Solar Year by 11 Days; for to every Lunar Month is accounted

ounted but 29 Days and a half, ſo that a Lunar Year contains 354 Days, and the Solar Year conſiſts of 365 Days; the difference is 11 Days, which is called the Epact.

Short Rules to find the Golden Number, Dominical Letter, Epact, &c. in ſhort Diſtichs.

To know if it be Leap-Year, or what Year paſt.

Divide the Year by 4, what's left ſhall be
For Leap-Year 0. for paſt 1, 2, or 3.

Example.

Anno 1680, divide only the latter part of this Number, which is 80, by 4, and there remains 0, which ſhews it to be Leap-Year.

To find the Dominical, or Sunday Letter.

Divide the Year, its 4th, and 4 by 7,
What's left ſubſtract from 7, the Letter's given,
A. 1. B. 2. C. 3 D. 4. E. 5. F. 6. G. 7.

Example.

The Year of our Lord ——— 1680
Its fourth ——— 420
To both which, add ——— 4

7)2104(3
21

04

Being divided by 7, the remainder is 4; and according to the order of the ſtanding of the Letters, it

ſhews it to be D, which is the firſt of the Dominical Letters for that Year, (which is Leap-Year) which continues until the 24th of *February*, (St. *Matthias* day) and the other Letter is C, which ſerves all the Year after, accounting the Letters backward.

To find the Golden Number, Cycle of the Sun, and Indiction.

When 1, 9, 3. *to th' Year hath added been,*
Divide by 19, 28, 15.

Example.

To 1680 add 1, which is 1681: divide that by 19, and there remains 9, which is the Golden Number for that Year. Again to 1680 add 9, and the Sum is 1689; divide by 28, the reſidue is 9, the Cycle of the Sun for that Year. Laſtly, To 1680 add 3, the Sum is 1683; which being divided by 15, the remainder is 3, which is the Indiction for the ſame Year.

The Prime and Golden Number being given, to find the Epact.

Divide by 3, *for each one left add* 10,
30 *reject; the Prime makes Epact then.*

Example.

Anno 1680 the Golden Number is 9, which divide by 3, and there remains 0; therefore ten times 0 is 0, which added to 9, the Epact for the Year 1680.

By the 19 *Epacts, to find the day of* Easter-*Limit from the beginning of* March *inclusively.*

The Epacts take from 47 *but two,*
The greatest take from 77, *'twil do.*

Example.

Anno 1680 the Epact being 9, subtract it from 47, there remains 38, which is *Easter*-Limit for the same Year; which reckoned from the beginning of *March* inclusively, it will fall on *April* the 7th.

But when the Epact is 28, or 29, it must be subtracted from 77, that so the Limit may remain, and the next following Sunday after the Limit is always *Easter* day.

Easter-*Limit, and the Dominical Letter being given; to find* Easter-*day.*

The Letter more by 4 *from Limit take,*
What's left from nearest sevens, shall Easter make.

Or thus;

Take the Number of the given Letter more by 4 from the given Limit, and the residue from the greatest Sum of sevens, the last remainder added to the Limit (the Sum) or its excess above 31, is *Easter*-day in *March* or *April*.

Example.

Anno 1680, the Letter C, which is 3, more by 4, is 7; which taken from the Limit 38, the residue is 31; this taken from the nearest greater Sum of sevens in the Limit, *viz.* 35, there remains 4; which added to the Limit 38, the Sum is 42: the excess of which above

above 31 is 11 ; Therefore the 11th of *April*, *Anno* 1680, is *Easter*-day.

For the Days of the Months on which the Sun entereth the 12 Signs.

Twice 9, *twice* 10, *four* 12s, 11,
Then 12, *then* 9, *then* 8 *or* 7.

♈	♉	♊	♋	♌	♍	♎	♏	♐	♑	♒	♓
Mar.	*Apr.*	*May.*	*Jun.*	*Jul.*	*Aug.*	*Sep.*	*Oct.*	*Nov.*	*Dec.*	*Jan.*	*Feb.*
9.	9.	10.	10.	12.	12.	12.	12.	11.	10.	9.	8.

For the Degree of the Sun's Place on any day.

From the day of the Month on which the Suns Place is required, if you may, or else from the Sum of that and 30, substract the day of his entrance into the Sign of that Month, the remainder shall be the Degree of his place, in that or the next preceding Sign.

Example.

Suppose the 6th day of *March* 1680, I would know in what Degree of the Sign the Sun is in : Therefore according to the Rule, put 30 to it, then is it 36 ; from which if you take 9, the day of the Suns entrance into the Sign of that Month, there remains 27, which shews the Sun is in 27 Degrees, in the Sign preceding, which is ♈.

To

To find the Age of the Moon, or the Day of Her Change.

Janu. 0, 1, 2, 3, 4, 5, 6,
8, 8, 10, 10, *theſe to the Epact fix.*
The ſum (*bate* 30) *to the Month-day add,*
Or take from 30, *Age or Change is had.*

Which is thus Explained.

Add to the Epact,

Jan.	*Feb.*	*Mar.*	*Apr.*	*Ma.*	*Jun.*	*Jul.*	*Aug.*	*Sep.*	*Oct.*	*Nov.*	*Dec.*
0.	2.	1.	2.	3.	4.	5.	6.	8.	8.	10.	10.

When the Epact is added to any of theſe Numbers, the Sum, if it be leſs than 30, or the Exceſs above 30, added to the day of the given Month, (rejecting, if need be) gives the Age of the Moon that day; but ſubſtracted from 30, leaves the day of the Change in (or from the beginning of) that Month.

For the day of the Full Moon, add or ſubſtract 15 to or from the day of the Change.

Example.

(1.) For the Age of the Moon on the 11th of *May* 1680, the Number of the Month is 3, added to the Epact 9, makes 12; which added to 10, makes 22, the Age of the Moon required.

(2.) For the day of the Change, (or New Moon) in *May* 1680, the Epact 9, with the Figure 3, makes 12, (as before); which ſubſtracted from 30, there reſts 18, on which day is the Moons Change, (or the New Moon) in *May* 1680.

(3) For the day of the Full Moon, take 15 from 18, there remains 3, which is the day of the Full Moon in that Month.

To

To find the Hour of the Moons coming to South, and High-Water at London.

The Moons Age multiply by 4; divide
By 5 for fouthing: add 3 for the Tyde.

Example.

If on the 10th of *May* 1680, the Moon is 10 days old; which being multiplied by 4, makes 40, and divided by 5, the Quotient is 8, which is the time of the Moons fouthing in the Morning, becauſe the Moon is paſt the Full; to which if you add 3, makes 11, which ſhews the time of High-Water at *London*.

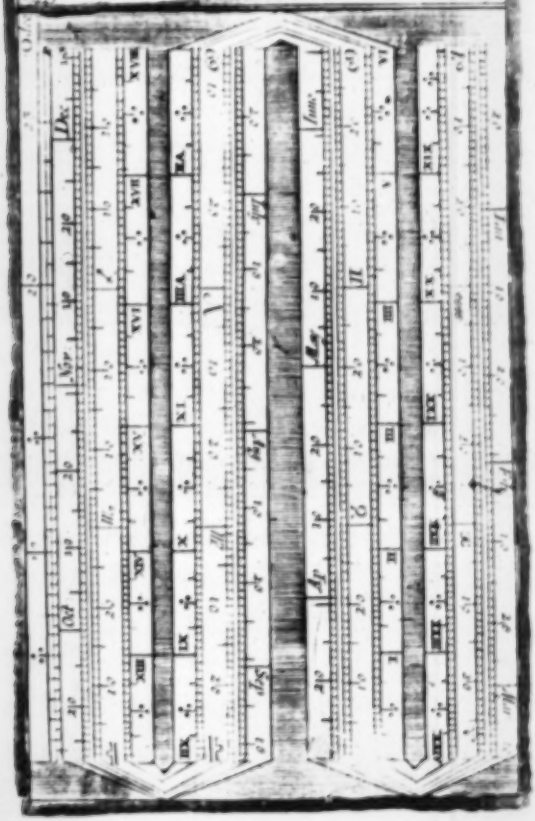
The uſe of the Almanack in Lines, Entituled, (An Almanack ſhewing the Day of the Month, Suns Place, Right Aſcenſion and Declination for ever.)

THe Margin on the left ſide ſheweth the Suns Declination for every day in the Year, directing your Eye from any of the Month required.

As for Example.

If it ſhould be required to know what Declination the Sun hath on the 25th day of *October*; which day you will find in the ſecond Column, and right againſt the 15th day, the Declination to be about 15 Degrees; and you may well determine it to be South Declination,

An Almanck Shewing the Day of the Month, Suits Place, Right Ascension and Declination for ever: By John Seller.



A Perpetual Almanack

For finding the day of the Month for ever, For time Past, Present, And to come. By John Seller.

Januar	Februar	March	April	May	June
At Good	Dover Christoph	Dwells Finch	George And	Browne David	Esquire Fryer
July	August	Septem	October	Novem:	Decemb

To find the Dom: Letter for ever

C 1	E 1	G 1	B 1	D 1	F 1	A 1
B 2	D 2	F 2	A 2	C 2	E 2	G 2
A 3	C 3	E 3	G 3	B 3	D 3	F 3

GF	BA	DC	FE	AG	CB	ED
1000	1200	1400	1600	1100	1300	1500
1610	20	24	28	32	36	40
44	48	52	56	60	64	68
72	76	80	84	88	92	96
1700	4	8	12	16	20	24
28	32	36	40	44	48	52
2400	1900	2100	2300	1800	2000	2200

High water Lond bridge	Moons age	The Moons southing	Moons age for her Sun
3 — 48	1 — 16	0 — 48	1 — 29
4 — 36	2 — 17	1 — 36	2 — 28
5 — 24	3 — 18	2 — 24	3 — 27
6 — 12	4 — 19	3 — 12	4 — 26
7 — 0	5 — 20	4 — 00	5 — 25
7 — 48	6 — 21	4 — 48	6 — 24
8 — 36	7 — 22	5 — 36	7 — 23
9 — 24	8 — 23	6 — 24	8 — 22
10 — 12	9 — 24	7 — 12	9 — 21
11 — 0	10 — 25	8 — 00	10 — 20
11 — 48	11 — 26	8 — 48	11 — 19
12 — 36	12 — 27	9 — 36	12 — 18
1 — 24	13 — 28	10 — 24	13 — 17
2 — 12	14 — 29	11 — 12	14 — 16
3 — 0	15 — 30	12 — 00	15

To find the day of the Month

1	8	15	22	29
2	9	16	23	30
3	10	17	24	31
4	11	18	25	
5	12	19	26	
6	13	20	27	
7	14	21	28	

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tion, becauſe the Sun is then to the ſouthward of the Equinoctial, being after the 13th day of *September* 3 from which time, to the 10th of *March* following, the Sun hath all that time South Declination. And if you would know the Suns Place for the ſame day, obſerve this direction following.

To find the Sun's Place.

Suppoſe the Sun's Place were required on the aforeſaid day, *viz.* the 25th of *October*: direct your Eye from the ſaid day, to the next Column on the right hand, and you will find the Sun's Place to be in 12 Degrees of *Scorpio*. And if you would know the Suns Right Aſcenſion that day, in time obſerve theſe following Directions.

To find the Suns Right Aſcenſion in Hours.

Suppoſe it were required to find the Suns Right Aſcenſion (converted into Hours) for the aforeſaid 25th of *October*; which in the 4th Column you will find, right againſt the ſaid day, to be 15 hours.

The ſame way and order is to be obſerved in all the reſt of the Months for any of the forementioned Requiſites.

The Uſe of the Perpetual Almanack.

THis Almanack is contained in this ſhort Diſtich;

At Dover *Dwells* George Brown *Eſquire*,
Good Chriſtopher Finch, *And* David Friar.

By which Verſe, with the help of the Dominical Let-

ter, you may find the day of the Month, for any time past, present, or to come; the use of which Tables and Verse are here under shewed.

The Use of the Tables of the Dominical Letters, and their Application, for finding the day of the Month by the help of the aforesaid Distich.

First therefore observe, That all those Years expresst in the Tables, are all Leap-Years; as the Years 1000, 1200, 1400, 1600, *&c.* and so of the rest, which are all Leap-Years, and have each of them two Dominical Letters, as you may see in their respective Columns over their heads; as for the Year 1000, the Dominical Letters were G F, and so of the rest. The other Figures also, as 20, 24, 28, 32, *&c.* are all Leap-Years; the use of which are thus explained.

First, Suppose the Dominical Letter is required for the Year 1632; look for 1600 in one of the Columns, and in another Column for 32; and on the head of the said Column, you will find it is Leap-Year, and the *Dominical Letters* to be A G.

Secondly, Suppose you would know the *Dominical Letter* for the Year 1681: Look in the Table for 81, which you find not there; Therefore look for the Year before, which is 80, and that is *Leap-Year*, and the *Dominical Letters* are D C. Now C being the *Dominical Letter* for the latter part of the Year 1680. The next Letter before it, in the Alphabetical order is B, which is the *Dominical Letter* for the next Year 1681, Which Letter you will find on the top of the next Column, where you will find the Letter

ter B, with the Figure of 1 by it, which informs you that it is the first after *Leap-Year*. And so for the Year 1682, the *Dominical Letter* is A, and the second after *Leap-Year*; the same is to be understood of the rest. Thus having found the *Dominical Letter*, the day of the Month may be found by these following Directions.

To find the Day of the Month of the fore-mentioned Distich, with the help of the Dominical Letters found in the Table.

For the finding the day of the Month by that short Verse, you are to take notice, That the first Letter in each word, is the same Week day Letter that always beginneth the Month: as A always beginneth *January*, and so of the rest, as you may see in any Almanack, according to that order as you see in the Distich: All which will be sufficiently explained in this

Example.

The first Sunday in *June*, in the Year 1681, I would know what day of the Month it is for that Year; I find B is the *Domical Letter*, and by the Distich you find the Letter E begins the Month of *June*; therefore count on in the natural order of the Alphabet, from E until you come to B, which is Sunday, thus, E one, F two, G three, A four, B five, which is Sunday, and the 15th day of the Month.

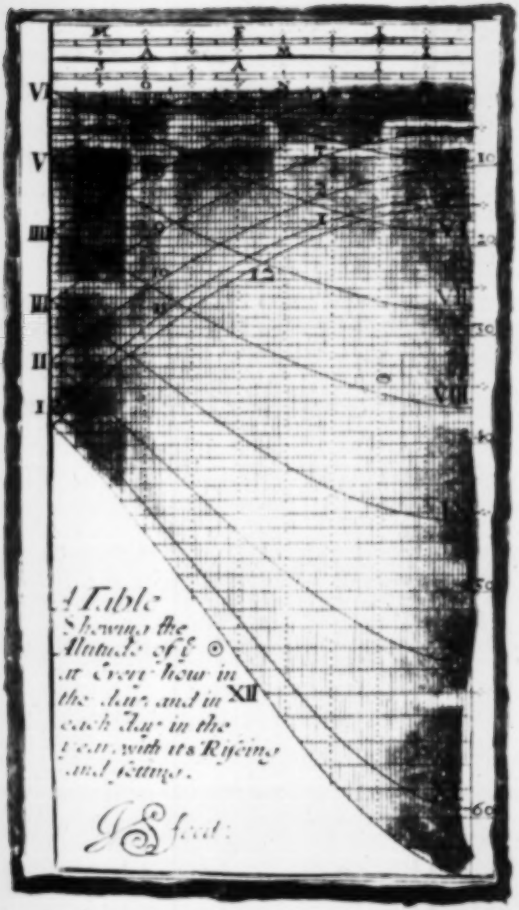
Example 2.

I would know what day of the Month the first *Thursday* of *July* is in the Year 1681, the *Dominical Letter* being B. I find by the Verse that *July* begins the Month with G; therefore I say, G one, A two,

B three, (which is *Sunday*) C therefore is *Monday*, D *Tuesday*, E *Wednesday*, F *Thursday*, which is seven in number from G, (including it) and therefore is the 7th day of the Month on which the first *Thursday* falls on. The Month begins with a *Friday*, and so you may cast your Eye down to a small Table on the bottom of the said Almanack, and there you may take notice, that the first row of Figures on the head of the Table, is 1. 8. 15. 22. 29; which you may reckon to be always the same days of the Week that the Month begins with; as if the Months which begin with a *Sunday*, then the first row are all *Sundays*, and the second row all *Mondays*, the third row all *Tuesdays*, and so on. As for instance, The Month of *July*, in the Year 1681, begins on a *Friday*, so then the upper row are all *Fridays*, and the second row *Saturdays*, &c. So also you may say, *Friday* and *Friday* is 8, and *Friday* is 15, and *Friday* is 22, and *Friday* is 29, &c. So after these Rules and Directions, you may always find the day of the Month at any time, both past, present, and to come.

Upon the same Print of the *Perpetual Almanack*, you have also some other small Tables; one shewing the time of High-Water at *London-Bridge* any day of the Moons Age. Another sheweth the Moons coming to the South at any day of her Age; by help of which you may know the time of High-Water at *London* or elsewhere, where the time of Flowing is known, at the Full and Change days. The fourth Table sheweth the Moons Age for her shining. The Use of each Table shall be explained in these following Directions.

By


A Table
Showing the
Altitude of ☉
at Every hour in
the day, and in
each day in the
year, with its Rising
and setting.
J. S. feed:
VI
V
IIII
III
II
I
XII
VII
VIII
10
20
30
40
50
60

A Catalogue of all the Eclipses of ye Sun and Moon, which will be visible in Engl. from the year 1677. to the year 1700.

Year.	Moneth.	D	H	M	Lun	Dig.	Min.
1677	May.	6	15	25	☽	8	—15
1678	October.	29	8	17	☽	22	—18
1681	August.	13	18	22	☽	10	—35
1682	August.	7	17	56	☉	18	—50
1682	February.	11	11	29	☽	10	—48
1683	January.	27	4	27	☉	10	—30
1684	June.	10	14	17	☽	1	—35
1684	July.	2	3	10	☉	8	—0
1685	November.	30	10	26	☽	21	—45
1686	November.	19	11	22	☽	7	—35
1687	May.	21	1	25	☉	1	—40
1688	April.	5	6	4	☽	0	—49
1688	March.	25	0	41	☽	21	—10
1690	September.	18	14	46	☽	20	—30
1690	March.	14	10	11	☽	5	—53
1692	July.	17	15	9	☽	12	—28
1693	February.	11	16	24	☽	20	—34
1693	June.	23	0	6	☉	2	—54
1694	June.	26	12	50	☽	6	—47
1695	November.	10	7	0	☽	6	—55
1696	May.	6	11	35	☽	21	—48
1696	October.	20	10	30	☽	21	—45
1697	October.	10	7	44	☽	8	—54
1699	March.	5	7	14	☽	9	—5
1699	September.	12	21	30	☉	10	—0

A Catalogue of all the Eclipses of the Sun and Moon which will be visible in England From the year [illegible] to the year [illegible]

Year	Month	D	H	M		Hr	Mi
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]

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By having the Moons Age, to find the time of High Water at London-Bridge.

The Moons Age muſt be firſt known from ſome other Tables in the Book, or elſe-where; which being known, find the day thereof in the fore-mentioned ſmall Table, and right againſt it, on the left hand, you will find the time of High-Water at *London-Bridge.*

As for Example.

If the Moon be ſix days old, I would know when it is High-Water at *London-Bridge.* Therefore firſt ſeek the Moons Age 6 in its proper Table, and right againſt it you will find 7. 48. which ſhews that it is High-Water at 7 a Clock and 48 Minutes paſt.

To find the Moons Southing any day of her Age.

Firſt you muſt look the Age of the Moon as before, and then ſeek the ſame in the Table of her Age, and right againſt it, in the Table on the right hand, under the title of *Moons Southing*, you will have your deſire. And here note. That from the New to the Full, the Moon cometh to South in the Afternoon; but from the Full to the New in the Morning.

As for Example.

When the Moon is ſix days old, I would know the time of her coming to South. Therefore if you caſt your Eye on the Table of the *Moons Southing*, you will find 4 48. which ſhews that the Moon cometh to South at 4 a Clock and 48 Minutes paſt.

The Use of these Tables for finding the time of the Moons Shining.

To know how long the Moon shineth, enter the Column of the Moons Age for her shining, and against it on the left hand you have the time of her shining: which all the time of her Encrease being added to the hour of Suns Rising, gives the time of her Rising; but if added to the time of Suns Setting, gives the time of her Setting; but after the Full, the time of her shining from the Suns Rising, and it gives her Rising; and then take the same from the Suns Setting, and it gives the time of her Setting.

Example.

In the Year 1689 *October* the 5th, the Moon is 22 days old. Which number find in the Table, and you will see that right against it there is 6 Hours 24 Min. for the time of her shining: which being added to the Suns rising of the same day, which is 6 Hours 46 Minutes, makes 13 Hours 32 Minutes; from which take 12, and there rests 1 Hour 32 Minutes, which is the time of the Moons Rising the next Morning.

Again, to the same 6 Hours 24 Minutes, add 5 Hours 14 Minutes (the Suns Setting) and it gives 11 Hours 38 Minutes for the time of her Setting the next day a little before Noon.

To find the Hour of the Night by the shadow of the Moon upon a Sun-Dial, by the help of the Table of the Moons Southing.

Observe on a Sun-Dial what hour the shadow of the

the Moon falls upon, and take notice how much the ſhadow doth either lack or is paſt the Hour of 12 upon the Dial, for ſo much it doth want of, or is paſt the time of the Moons coming to South.

Example.

Suppoſe the Moon were ten days old; you find (by the Table) that the Moon cometh to South at 9 of the Clock. Now ſuppoſe the ſhadow of the Moon ſhould fall on the Hour of 10, this wants 2 Hours of 12, and therefore it wants two Hours of eight, which is 6 of the Clock in the Evening.

But if the ſhadow of the Moon had been at 2 upon the Dial, then you muſt have added 2 Hours to the Moons coming to South, then would it be 10 of the Clock at Night.

And Note: When the Moon is in the Full, then the ſhadow of the Moon ſhews the true Hour of the Night, as the ſhadow of the Sun doth by Day.

The Uſe of the Table of the Eclipſes of the Sun and Moon.

This Table is ſufficiently plain of it ſelf by inſpection only; but however I ſhall give one Example.

In the Year 1681, the 28 of *Auguſt*, you will find the Moon will be Eclipſed at 14 Hours 22 Minutes, which is 22 Minutes paſt two of the Clock next Morning, and the quantity eclipſed will be 10 Digits 35 Minutes.

The

The Use of the Perpetual Table for finding the Break of Day, Suns Rising, Planetary Hours, both by Night and Day in the Latitude of London, *every 10th Day in the Month.*

In the first Column you have the 12 Months of the Year; in the second, 1, 11, and 22 Days of the Month; in the third the Break of Day, which on the 11th of *February* is at 5 of the Clock; in the fourth is the time of Twilight, which against the said 11th of *February*, is at 7 of the Clock, which is the time of the ending of Twilight in the Evening; in the 5th and 6th Columns, the Rising and Setting of the Sun; in the 7th and 8th Columns, the length of the Day and Night; and in the 9th and 10th Columns, the length of the Planetary Hours both by Night and Day.

The Use of the Table of the Essential Dignities of the Planets.

Every Planet hath two Signs for his Houses, except ☉ and ☽, they have but one apiece; ♄ hath ♑ and ♒; ♅ hath ♐ and ♓; ♂ hath ♈ and ♏; ♀ hath ♉ and ♎; ☿ hath ♊ and ♍; ☽ hath ♋, &c. One of these Houses is called *Diurnal*, noted with the letter D; the other is *Nocturnal*, noted by the letter N. In these Signs the Planets have their Exaltations, which are noted in the third Column; as the ☉ in the 19 ♈. ☽ in the 3 ♉. ♌ in ♊ 3 Degrees, &c. are exalted.

These 12 Signs are divided into four Triplicities; the 4th Column tells you what Planet, or Planets, both Night and Day governs each Triplicity; as over against

A Table shewing the true Hour of the day, by a plain Staff, divided into 10 equal parts

Ho before en / Ho after noon			12	11 / 1	10 / 2	9 / 3	8 / 4	7 / 5	6 / 6	5 / 7
Jan.	11	11	5 b	6	7 b	9 c	13 b	19 a	30	57 a
	1	21	5 b	6	7 b	10	13 c	19 b	30 b	59
May	21	2	5 c	6 b	7 c	10 a	14	20 a	32	65 a
	11	13	6 a	6 c	8 a	10 c	14 c	21 b	35	78 b
April	30	23	7	7 b	9	11 b	16	23 a	40	108
	20	2	7 c	8 a	10	12 c	17 b	26 b	48	196
	9	13	8 c	9 a	11	14	19 b	30	62 a	
March	30	23	10	10 b	12 a	15 c	22 a	36 b	92 a	
	20	2	11 a	12	14	18	26	46	182	
	10	13	13	13 c	16	21	31 a	62 a		
Febr.	28	22	15	16	18 c	24 c	39	97 a		
	18	3	17 b	18 b	22	30 c	51	210		
	8	13	20 b	21 c	26	36	70 c			
Jan.	29	23	24	25 b	31	46	110			
	19	2	28	29 a	37	50	208			
	9	11	32	34 b	44	70	829			
Decemb.	30	21	36	39	51	77				
	21	1	39	42 b	56 b	117				
	11	11	40	43 c	59	126				

Note that a stands for quarter of a part. b for half a part, and c for three quarters.

To find the hour of the day by this Table.

Take a *Staff* of what length you please, and (with a *Pair of Compasses*) divide it into 10 equal parts, marking them upon the *Staff*: then in some plain level place, where the *Sun* doth shine, set it upright, and mark where the end of the shadow thereof falls, which done, measure with your *Staff*, the length of the shadow and note the parts it contains, which find out in this *Table*, against the day of the *Month*, and over head, you have the *true hour* of the *day*.

Suppose the 9 of *April* or 13 of *August*, I should find the shadow of the Staff to be 30 parts and a quarter (that is three Staff length and a quarter) therefore seeking in the *Table* against the said dayes I see over-head, that it is then either 7 a clock in the morning or 5 in the afternoon so that if your observation was in the morning it was 7 but if in the after noon, 5 a clock

By this Example, you may see the ease and excellent use of the Table which is as ready as any moveable Sun Dyal; so that wherefoever you are or travell, you may shewing this Book about you speedily know the true hour, &c.

A Perpetual Table of Break of day, Sun rise, planetary hour, &c. in the Latitude of London.

		Break of day	Twi light	Sun rise	Sun set	long day	long night	H by D	H by N
		h m	h m	h m	h m	h m	h m	h m	h m
	1	5 54	6 8	8 23	7 56	16 0	8 0	0 40	1 20
Janu.	11	5 41	6 18	7 59	4 11	8 22	15 38	0 42	1 18
	21	5 25	6 25	7 34	4 26	8 52	15 8	0 44	1 16
	1	5 13	6 33	7 17	4 43	9 26	14 34	0 47	1 13
Febr	11	5 0	6 40	6 59	5 1	10 2	13 58	0 50	1 10
	21	4 46	6 48	6 42	5 18	10 36	13 24	0 54	1 6
	1	4 30	6 56	6 23	5 37	11 14	12 46	0 56	1 4
Mar.	11	4 39	7 1	6 0	0 0	12 0	12 0	1 0	1 0
	21	3 54	8 22	5 42	6 18	12 36	11 24	1 3	0 57
	1	3 38	8 35	5 20	6 40	13 20	10 40	1 7	0 53
April	11	3 20	9 24	4 58	7 2	14 4	9 56	1 10	0 50
	21	3 2	9 38	4 40	7 20	14 40	9 20	1 13	0 47
	1	2 50	9 50	4 22	7 38	15 16	8 44	1 16	0 44
May	11	2 30	11 30	3 0	8 5	15 42	8 18	1 18	0 42
	21	and	Night	3 55	8 56	16 10	7 50	1 20	0 40
	1	day	night	3 50	8 10	16 20	7 40	1 21	0 39
June	11	and	but	3 50	8 3	16 26	7 34	1 21	0 39
	21	no	Twi	3 50	8 10	16 20	7 40	1 22	0 38
	1	Night	Light	3 50	8 16	16 26	7 34	1 20	0 40
July	11	0 32	11 18	4 0	7 52	15 52	8 8	1 18	0 42
	21	1 22	10 34	4 21	7 39	15 18	8 42	1 16	0 44
	1	0 10	10 0	4 39	7 21	14 42	9 18	1 13	0 47
Augst	11	2 21	9 27	4 58	7 2	14 4	9 56	1 10	0 50
	21	3 0	9 0	5 16	6 44	13 28	10 32	1 7	0 53
	1	3 30	8 30	5 35	6 25	12 50	11 14	1 3	0 57
Septem	11	3 50	8 1	5 56	6 4	12 8	11 52	1 0	1 0
	21	4 19	7 41	6 16	5 44	11 28	12 32	1 57	1 3
	1	4 48	7 12	6 36	5 24	10 48	13 12	0 54	1 6
October	11	5 07	6 56	6 56	5 4	10 8	13 52	0 50	1 10
	21	5 18	6 47	7 15	4 45	9 30	14 30	0 47	1 13
	1	5 37	6 27	7 34	4 26	8 52	15 8	0 44	1 16
Novem	11	5 45	6 17	7 49	4 11	8 22	15 38	0 42	1 18
	21	5 54	6 8	8 3	3 57	7 54	16 6	0 40	1 20
	1	5 57	6 3	8 10	3 50	7 40	16 20	0 39	1 21
Decem	11	6 06	6 0	8 13	3 47	7 34	16 26	0 38	1 22
	21	6 06	6 2	8 12	3 48	7 36	16 24	0 38	1 22

A Table shewing what Planets Rules every hour of the Day and Night.

	the hours of the Day.												the hours of the Night.											
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12
Sund.	☉	♀	☿	☽	♄	♃	♂	☉	♀	☿	☽	♃	♃	♂	☉	♀	☿	☽	♄	♃	♂	☉	♀	☿
Mond.	☽	♄	♃	♂	☉	♀	☿	☽	♄	♃	♂	☉	♀	☉	☽	♄	♃	♂	☉	♀	☿	☽	♄	♃
Tuesd.	♂	☉	♀	☿	☽	♄	♃	♂	☉	♀	☿	☽	♄	♃	♂	☉	♀	☿	☽	♄	♃	♂	☉	♀
Wednes.	☿	☽	♄	♃	♂	☉	♀	☿	☽	♄	♃	♂	☉	♀	☿	☽	♄	♃	♂	☉	♀	☿	☽	♄
Thurs.	♃	♂	☉	♀	☿	☽	♄	♃	♂	☉	♀	☿	☽	♄	♃	♂	☉	♀	☿	☽	♄	♃	♂	☉
Fryd.	♀	☿	☽	♄	♃	♂	☉	♀	☿	☽	♄	♃	♂	☉	♀	☿	☽	♄	♃	♂	☉	♀	☿	☽
Saturd.	♄	♃	♂	☉	♀	☿	☽	♄	♃	♂	☉	♀	☿	☽	♄	♃	♂	☉	♀	☿	☽	♄	♃	♂

Note that to every day in the week there is appropriated a several Planets as to the Sunday ☉ to Monday ☽ Tuesd. ♂ &c. & therefore each planet governs 4 with hours as by this Table, you may perceive that ☉ sun governs 1 with hour after sun rising and 8 second & third ☿ Mercury governs 4 fourth planet ♀ &c. so in 7 days 4 weeks plus how the 8 hour after sun set ☽ ♄ ♃ ♂ ☉ ♀ ☿ you may Diligently Consider & Remember.

A Table of ye Essential Dignities of the Planets according to Ptolomy.

Signes.	Night Dayn. Sect.	Exalta	tion	Joys of the Planets	The Terms of the Planets.					The faces of the Planets.			Dom. Trip.	Fall
♈	♂ D	☉	10	☉ · ♃	♃ · 6	♀ · 14	☿ · 22	♂ · 26	♄ ·	♂ · 10	☉ · 20	☾ · 30	♀	♄
♉	♀ N	☽	3	♀ · ☽	♀ · 8	☿ · 15	♃ · 22	♄ · 26	♂ · 30	☿ · 10	☽ · 20	♄ · 30	♂	
♊	☿ D	☿	63	♄ · ☿	☿ · 7	♃ · 1	♀ · 21	♄ · 25	♂ · 30	♃ · 10	♂ · 20	☉ · 30	♃	
♋	☽ N	♃	15	♂ · ♂	♂ · 6	♃ · 13	☿ · 20	♀ · 27	♄ · 30	☿ · 10	☿ · 20	☽ · 30	♄	♂
♌	☉ ♄			☉ · ♃	♄ · 6	♀ · 13	☿ · 19	♃ · 25	♂ · 30	♄ · 10	♃ · 20	♂ · 30	♄	
♍	☿ N	☿	15	☿ · ☽	☽ · 7	♀ · 13	♃ · 18	♄ · 24	♂ · 30	☉ · 10	♀ · 20	☿ · 30	♃	♓
♎	♀ D	♄	2	♄ · ☿	♄ · 6	☿ · 11	♃ · 19	☿ · 24	♂ · 30	☽ · 10	♄ · 20	♃ · 30	♂	♈
♏	♂ N			♂ · ♂	♂ · 6	♃ · 14	♀ · 21	☿ · 27	♄ · 30	♂ · 10	☉ · 20	♀ · 30	♀	☽
♐	♃ D	☿	3	☉ · ♃	♃ · 6	♀ · 14	☿ · 19	♄ · 25	♂ · 30	☿ · 10	☽ · 20	♄ · 30	☿	
♑	♄ N	♂	28	♀ · ☽	☿ · 6	♃ · 12	♃ · 19	♂ · 25	♄ · 30	♃ · 10	♂ · 20	☉ · 30	☽	♃
♒	♄ D			♄ · ☿	♄ · 6	☿ · 12	♀ · 20	♃ · 25	♂ · 30	♀ · 10	☿ · 20	· 30	☉	
♓	♃ N	♀	27	♂ · ♂	☿ · 6	♃ · 14	♀ · 20	♂ · 26	♄ · 30	♄ · 10	♃ · 20	♂ · 30	☿	☿

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against ♈. ♌. ♐. you find ☉. ♃. *viz.* ☉ governeth by Day in that Triplicity. Over against ♉ ♍. ♑. you find ♀ and ☽; *viz.* that ♀ hath domination by Day, and ☽ by Night, in that Triplicity. Over against ♊. ♎. ♒. you find ♄. ☿. which rule as aforesaid. Over against ♋. ♏. ♓. you find ♂. which (according to *Ptolomy*) ruleth only that Triplicity both Day and Night. Overagainst ♈, in the 5, 6, 7, 8, 9, Columns, you find ♃ 6. ♀ 14. which tells you the first 6 Degrees of ♈ are the terms of ♃. from 6 to 14 the terms of ♀, &c.

Overagainst ♈, in the 10, 11, 12, Columns, you find ♂ 10. ☉ 20. ♀ 30. *viz.* the first 10 Degrees of ♈ are the Face of ♂; from 10 to 20, the Face of ☉; from 20 to 30, the Face of ♀, &c.

Overagainst ♈, in the 13 Column, you find ♀ detriment; *viz.* ♀ being in ♈, is in a Sign opposite to one of her Houses, and so is said to be in her Detriment.

Overagainst ♈ in the 14 Column, you find ♄, and over his head fall; that is, ♄ when he is in ♈, opposite to ♎ (his Exaltation) and so is infortunate, &c.

A Planet dignified as above-said, is said to be in his Essential Dignity. Accidental Dignities are, when Planets are casually in an Angle or succedent House, direct free from combustion.

A Planet in his House or Exaltation, being significant of any Person, denotes him to be in a happy and prosperous Condition, not wanting for the Goods of this Life.

A Planet debilitated, as being in detriment, or fall, and afflicted, denotes the Querent to be in a very low and mean Condition, much dejected and disconsolate.

The Use of the Table of the Planetary or Unequal Hours for every Night and Day in the Year.

To find what Planetary Hour it is, and also what Planet reigneth that Hour.

You must learn at what Hour and Minute the Sun doth rise upon the day proposed; which you may find in each page of the Almanack, and also the true Hour of the Day at any time proposed: Then observe how many Hours and Minutes the said time is after Sun rising; the number of which Hours multiply by 60, and to the Product add the odd Minutes, (if there be any) then the Aggregate divided by the number of minutes that a Planet reigneth, the Quotient will shew the number of a Planetary Hour.

Example.

Suppose that when the Sun riseth at 8 of the Clock, as upon *Saturday* the 8*th* of *January* 1681 it doth, and it be required to know what Planetary Hour it is at 11 a Clock before noon the same day; therefore because 11 a Clock is 3 hours after 8, the Suns rising, multiply 3 by 60, and the Product is 180; which being divided by 40, (for so many minutes are in a Planetary Hour that day) the Quotient is 4 hours 30 minutes: Therefore you may conclude that there are 30 minutes spent of the Planetary Hour.

Having found what Planetary Hour it is, and would know what Planet doth reign that hour, do thus;

Seek the day of the Week in the precedent Table, and the hour of the day on the top of the Table, and in

in the common Angle of Meeting you will find the Planet that governeth that hour: And in the other precedent Table on the right hand, which is for the Night, is the Planet that governeth the same Hour by Night.

Example.

Upon the aforesaid day, (the 8th of *January* 1681) it is required to find what Planet reigneth at 11 a Clock before Noon the same day: Therefore according to the aforesaid Rule, you may find there are 30 minutes spent of the fourth Planetary Hour; therefore first find *Monday* on the side of the said precedent Table, then look for 4 in the head of the Table, and in the common Angle of Metting you will find ♂ to be the Governor that rules the 4th Hour of the same day.

Of the Properties and Natural Effects of the Seven Planets.

Having now shewed what Planet rules each Hour, it will be necessary to shew the Natures, Qualities, and Dispositions of them.

♄ denotes in general, Lands, Houses, Tenements, Country-men, Ancient People, &c.

♃ signifies Judges, Senators, Divines, Riches, Law, Religion, &c.

♂ signifies Souldiers, Physicians, War, Strife and Debate, Theft, and all manner of Cruelty, &c.

☉ signifies Honour, Greatness, noble Persons of all degrees.

♀ denotes Women, Pleasure, Pastimes, all kinds of Delights, Mirth, sweet Odours, &c.

☿ denotes all kinds of Scribes or Secretaries, Mathematicians, Servants, &c.

☽ signifies Women in general, all common and vulgar Persons.

The Use of the Table that sheweth the Altitude of the Sun every hour of the Day, and each day of the Year; with the Rising and Setting of the Sun.

The Description of the Table.

The Months are on the head of the Table, each Month noted with the proper Letter belonging to the Month, as *J* for *January*, *F* for *February*, *M* for *March*, &c.

The Hour-lines that bend downward, are the Summer-hours, those that bend upward are the Winter-hours; the small Lines that fall perpendicularly are the Parallel Lines of the days of the Year.

Those that run thwart them at right Angles with these, are the Parallels of the Suns Altitude, proceeding from the Tangent-Line on the right side of the Table.

The lower Line of the top Margent of the Months, represents the Horizon, where you are to find the rising and setting of the Sun.

The

The Uſes follow.

To find the Altitude of the Sun on any Hour and Day in the Year.

I would know what Altitude the Sun will have the 10th of *May*, at 9 of the Clock in the Forenoon, or at 3 in the Afternoon, which is all one.

Therefore find the 10th of *May* in the Margent of the Months on the top of the Table; then find the hour of 9 on the right hand of the Table, and note the Hour-Line which paſſes from 8 on the right ſide, (which are Morning hours) to 3 on the left ſide (which are the Afternoon hours); then direct your eye down from the 10th of *May*, in one of the neareſt lines that proceeds down-right, until it meets and interſects the ſaid Hour-line; then direct your eye from that Interſection, to one of the thwart Lines that proceeds from the Hour-line, and where that Line meets with the Tangent-Line (on the right ſide of the Table) to 43, which is the Altitude of the Sun at that day and hour aforeſaid: the ſame is to be underſtood alſo of the Winter-Hours.

To find the Riſing and Setting of the Sun by the ſame Table.

The aforeſaid 10th of *May*, note what Hour-Line toucheth the lower Line of the Margent of Months, and there you will ſee that the hour of 4, which proceeds from the Morning Hour Lines, and you may ſee that the end of the 4 a Clock Line, doth come

ſhore

☿ denotes all kinds of Scribes or Secretaries, Mathematicians, Servants, &c.

☽ signifies Women in general, all common and vulgar Persons.

The Use of the Table that sheweth the Altitude of the Sun every hour of the Day, and each day of the Year; with the Rising and Setting of the Sun.

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Those that run thwart them at right Angles with these, are the Parallels of the Suns Altitude, proceeding from the Tangent-Line on the right side of the Table.

The lower Line of the top Margent of the Months, represents the Horizon, where you are to find the rising and setting of the Sun.

The

The Uſes follow.

To find the Altitude of the Sun on any Hour and Day in the Year.

I would know what Altitude the Sun will have the 10th of *May*, at 9 of the Clock in the Forenoon, or at 3 in the Afternoon, which is all one.

Therefore find the 10th of *May* in the Margent of the Months on the top of the Table; then find the hour of 9 on the right hand of the Table, and note the Hour-Line which paſſes from 8 on the right ſide, (which are Morning hours) to 3 on the left ſide (which are the Afternoon hours); then direct your eye down from the 10th of *May*, in one of the neareſt lines that proceeds down-right, until it meets and interſects the ſaid Hour-line; then direct your eye from that Interſection, to one of the thwart Lines that proceeds from the Hour-line, and where that Line meets with the Tangent-Line (on the right ſide of the Table) to 43, which is the Altitude of the Sun at that day and hour aforeſaid: the ſame is to be underſtood alſo of the Winter-Hours.

To find the Riſing and Setting of the Sun by the ſame Table.

The aforeſaid 10th of *May*, note what Hour-Line toucheth the lower Line of the Margent of Months, and there you will ſee that the hour of 4, which proceeds from the Morning Hour-Lines, and you may ſee that the end of the 4 a Clock Line, doth come

ſhore

ſhort of the ſaid 10th day of *May*; which ſhews that the Sun riſes a little after 4 of the Clock; and ſo much after 4 as the riſing of the Sun is, ſo much doth the Sun ſet before 8 at Night.

The Explanation and Uſe of the Tables of the Suns Right Aſcenſion; and of the Table of the Stars Right Aſcenſion and Declination.

The Explanation of the Tables.

In the Table of the Suns Right Aſcenſion, the firſt Page contains the firſt ſix Months of the Year, and the next Page the other ſix Months.

In the firſt Column towards the left hand, are the days of the month, and in the other Columns is the Suns Right Aſcenſion in Hours and Minutes.

In the Table of the Stars Right Aſcenſion, there are ſix Columns; in the firſt, towards the left hand, are the names of the Stars; in the ſecond are the Stars Magnitudes; in the third, the Right Aſcenſion of the Stars in degrees and minutes; in the fourth, the Declination in degrees and minutes; in the fifth, the Right Aſcenſion in hours and minutes; and in the ſixth, the Denomination of the Declination, whether North or South.

The Uſe of the Tables.

Firſt, To find the time of the Stars coming upon the Meridian.

The Rule.

When you have found the Right Aſcenſion of the Sun

Sun and Stars for any day propoſed; then ſubſtract the Right Aſcenſion of the Sun from the Right Aſcenſion of the Star: but if the Stars Right Aſcenſion be leſs than that of the Sun, add thereto 24 hours, and then ſubſtract one from the other; the remainder after ſubſtraction is the time of the Stars coming upon the Meridian from Noon: and if the remainder exceed 12 hours, ſubſtract 12 hours therefrom, and then the remainder is the time from Midnight.

Example 1.

Suppoſe the time that the middle of the *Pleiades* comes on the Meridian, were required to the 5*th* day of *November* 1680.

I find the Stars Right Aſcenſion to be 3 hours 26 minutes, and the Suns Right Aſcenſion to be 15 hours 23 minutes.

Now becauſe the Suns Right Aſcenſion is more than the Stars, therefore add to the Stars Right Aſcenſion 24 hours, which makes 27 hours 26 min. from which ſubſtracting the Suns Right Aſcenſion, there remains 12 hours 3 minutes; from which ſubſtracting 12 hours, there remains 3 minutes: which is the time of the *Pleiades* coming to the Meridian after Midnight, which was required.

Example 2.

Suppoſe the time of *Pegaſus lower Wing* coming upon the Meridian on the ſaid 5*th* of *November* 1680.

I find in the Table the Stars Right Aſcenſion to be 23 hours 55 minutes, and the Suns Right Aſcenſion to be as before, 15 hours 23 minutes; which being ſubſtracted from the Stars Right Aſcenſion, leaves 8 hours 32 minutes, the true time of the Stars coming to the Meridian Afternoon.

Secondly,

Secondly, The time being given, to find what Star will come to the Meridian about the ſaid time.

The Rule.

To the Suns Right Aſcenſion add the time from Noon, at which the Stars coming to the Meridian is required, the ſum is the Right Aſcenſion of the Star that will come to the Meridian at that time; with which enter the Table, and look what Stars Right Aſcenſion agrees with the Right Aſcenſion before found, or neareſt thereto, and that is the Star ſought for.

Example.

Suppoſe *April* the 1ſt. I deſire to know what Star will come upon the Meridian at 3 hours after Midnight.

The Suns Right Aſcenſion that day is, 1 hour 21 min. the time from Noon is 15 hours; which added to the Suns Right Aſcenſion makes 16 hours 21 min. the neareſt in the Table is the *Scorpions Heart*, whoſe Right Aſcenſion is 16 hours 9 min. and comes to the Meridian 12 min. after 4; and *Hercules Head*, whoſe Right Aſcenſion is 16 hours 50 min. from which take 16 hours 21 min. and there reſts 29 min. after 4 of the Clock, which is the time of *Hercules Head* coming upon the Meridian. Note, That 16 hours from Noon, is 4 of the Clock next Morning.

A Table of ye Suns Right Ascen:

Days	Janua: Right Ascen: H · M	Febr: Right Ascen: H · M	March Right Ascen: H · M	April Right Ascen: H · M	May Right Ascen: H · M	June Right Ascen: H · M
1	19 · 35	21 · 42	23 · 28	01 · 21	03 · 14	05 · 19
2	19 · 39	21 · 46	23 · 32	01 · 25	03 · 18	05 · 23
3	19 · 43	21 · 50	23 · 36	01 · 26	03 · 22	05 · 27
4	19 · 47	21 · 54	23 · 39	01 · 33	03 · 26	05 · 31
5	19 · 51	21 · 58	23 · 43	01 · 36	03 · 30	05 · 36
6	19 · 56	22 · 02	23 · 46	01 · 40	03 · 34	05 · 40
7	20 · 00	22 · 06	23 · 50	01 · 44	03 · 38	05 · 44
8	20 · 04	22 · 10	23 · 53	01 · 47	03 · 42	05 · 48
9	20 · 09	22 · 14	23 · 57	01 · 51	03 · 46	05 · 52
10	20 · 13	22 · 17	00 · 01	01 · 54	03 · 50	05 · 56
11	20 · 17	22 · 21	00 · 05	01 · 58	03 · 54	06 · 00
12	20 · 22	22 · 25	00 · 08	02 · 02	03 · 58	06 · 04
13	20 · 26	22 · 29	00 · 12	02 · 06	04 · 02	06 · 08
14	20 · 30	22 · 33	00 · 15	02 · 10	04 · 06	06 · 12
15	20 · 34	22 · 36	00 · 19	02 · 13	04 · 10	06 · 17
16	20 · 38	22 · 40	00 · 23	02 · 17	04 · 14	06 · 21
17	20 · 42	22 · 44	00 · 26	02 · 21	04 · 18	06 · 25
18	20 · 46	22 · 48	00 · 30	02 · 25	04 · 22	06 · 29
19	20 · 50	22 · 52	00 · 33	02 · 29	04 · 26	06 · 33
20	20 · 54	22 · 55	00 · 37	02 · 32	04 · 30	06 · 38
21	20 · 58	22 · 59	00 · 41	02 · 36	04 · 34	06 · 42
22	21 · 03	23 · 03	00 · 44	02 · 40	04 · 38	06 · 46
23	21 · 07	23 · 06	00 · 48	02 · 44	04 · 42	06 · 50
24	21 · 11	23 · 10	00 · 52	02 · 48	04 · 46	06 · 54
25	21 · 15	23 · 13	00 · 55	02 · 51	04 · 50	06 · 58
26	21 · 19	23 · 17	00 · 59	02 · 55	04 · 54	07 · 02
27	21 · 23	23 · 21	01 · 03	02 · 59	04 · 58	07 · 06
28	21 · 27	23 · 25	01 · 06	03 · 03	05 · 02	07 · 10
29	21 · 31		01 · 10	03 · 07	05 · 06	07 · 14
30	21 · 35		01 · 14	03 · 10	05 · 11	07 · 19
31	21 · 38		01 · 17		05 · 15	

A Table of ye Suns Right Ascen:

Days	July: ☉ Right Ascen: H · M	August ☉ Right Ascen: H · M	Septem ☉ Right Ascen: H · M	Octo: ☉ Right Ascen: H · M	Novem ☉ Right Ascen: H · M	Decem ☉ Right Ascen: H · M
1	07 · 23	09 · 25	11 · 19	13 · 08	15 · 07	17 · 15
2	07 · 27	09 · 29	11 · 23	13 · 12	15 · 11	17 · 20
3	07 · 31	09 · 33	11 · 26	13 · 15	15 · 15	17 · 25
4	07 · 35	09 · 37	11 · 30	13 · 19	15 · 19	17 · 29
5	07 · 39	09 · 40	11 · 33	13 · 22	15 · 23	17 · 34
6	07 · 43	09 · 44	11 · 37	13 · 26	15 · 27	17 · 38
7	07 · 47	09 · 48	11 · 41	13 · 30	15 · 31	17 · 42
8	07 · 51	09 · 51	11 · 44	13 · 34	15 · 36	17 · 47
9	07 · 55	09 · 55	11 · 48	13 · 38	15 · 40	17 · 51
10	07 · 59	09 · 58	11 · 51	13 · 41	15 · 45	17 · 56
11	08 · 03	10 · 02	11 · 55	13 · 45	15 · 49	18 · 00
12	08 · 07	10 · 06	11 · 59	13 · 49	15 · 53	18 · 05
13	08 · 11	10 · 10	12 · 02	13 · 53	15 · 58	18 · 09
14	08 · 15	10 · 14	12 · 06	13 · 57	16 · 02	18 · 14
15	08 · 19	10 · 17	12 · 09	14 · 00	16 · 07	18 · 19
16	08 · 23	10 · 21	12 · 13	14 · 04	16 · 11	18 · 24
17	08 · 27	10 · 25	12 · 17	14 · 08	16 · 15	18 · 28
18	08 · 31	10 · 28	12 · 20	14 · 12	16 · 19	18 · 33
19	08 · 35	10 · 32	12 · 24	14 · 16	16 · 23	18 · 37
20	08 · 39	10 · 35	12 · 27	14 · 20	16 · 28	18 · 41
21	08 · 43	10 · 39	12 · 31	14 · 24	16 · 32	18 · 45
22	08 · 47	10 · 43	12 · 35	14 · 28	16 · 36	18 · 49
23	08 · 51	10 · 46	12 · 38	14 · 32	16 · 40	18 · 54
24	08 · 55	10 · 50	12 · 42	14 · 36	16 · 44	18 · 58
25	08 · 58	10 · 53	12 · 45	14 · 39	16 · 49	19 · 03
26	09 · 02	10 · 57	12 · 49	14 · 43	16 · 53	19 · 07
27	09 · 06	11 · 01	12 · 53	14 · 47	16 · 57	19 · 11
28	09 · 10	11 · 04	12 · 57	14 · 51	17 · 02	19 · 16
29	09 · 14	11 · 08	13 · 01	14 · 55	17 · 06	19 · 20
30	09 · 17	11 · 11	13 · 04	14 · 59	17 · 11	19 · 25
31	09 · 21	11 · 15		15 · 03		19 · 30

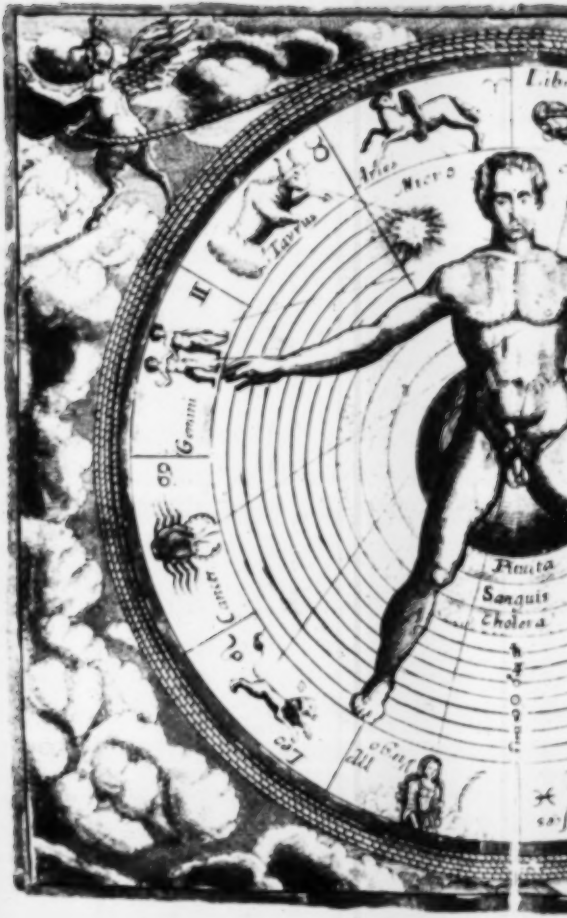
A Table of ye Magnitudes, Right Ascention in Hours and Minuts, and Degrees and Minuts, & ye Declination North or South of 33 fixed Stars.

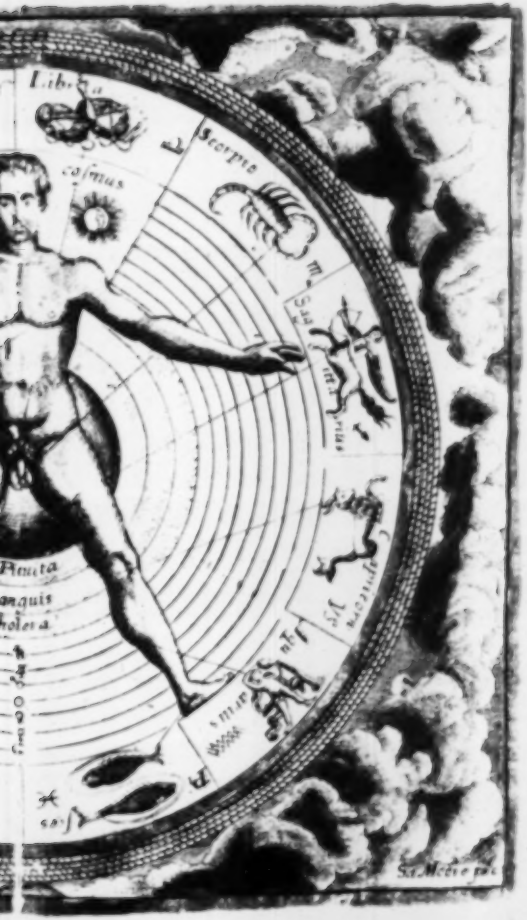
Names of ye Stars.	M	R. Asc. D	M	Decli. D	M	R. Asc. H	M	N S
Pole Star or Last in Ye Ht head	2	7	55	87	35	0	32	N
Andromedas Girdle	2	12	31	33	56	0	30	N
Medusaes head	3	41	27	30	35	2	46	N
Perseus right side	2	44	30	48	33	2	58	N
Middle of the Pleides	3	51	22	23	06	3	26	N
Bulls eye	1	64	0	15	48	4	16	N
Kercus or Goat	1	72	44	45	36	4	51	N
Orions left foot	1	74	30	8	38	4	58	S
Mid star in Orions Girdle	2	79	45	1	28	5	19	S
Orions right shoulder	2	84	5	7	18	5	36	N
Auriga or Waggoner	2	84	45	44	56	5	39	N
Great Dog	1	97	24	16	13	6	30	N
Castor or Apollo	2	108	00	32	30	7	12	N
Little dog	1	110	20	6	6	7	21	N
Poullux or Hercules	2	116	25	28	48	7	22	N
Hydraes heart	1	137	30	7	10	9	10	S
Lyons heart	1	147	30	13	30	9	40	N
Great Bears fore guard	2	166	48	63	32	10	43	N
Lyons tail	1	172	45	10	32	11	31	N
Virgins Spike	1	196	45	9	11	13	07	N
Last in Great Bears tail	2	203	36	51	5	13	34	N
Arcturus	1	209	56	21	4	14	00	N
Little Bears fore guard	2	222	46	75	36	14	52	N
Brightest in ye Crown	3	231	00	27	43	15	24	N
Scorpions heart	1	242	23	25	37	16	09	S
Hercules head	3	254	40	14	51	16	39	N
Lyra or harp	1	276	17	38	30	18	25	N
Eagle or Vulture	1	293	28	8	1	19	35	N
Swans tail	2	307	30	44	5	20	30	N
Dolphins head	3	307	33	15	0	20	32	N
Pegassus mouth	1	321	50	8	19	21	27	N
Tomahant	3	339	30	31	17	22	38	S
Pegassus lower wing	2	358	50	13	22	23	55	N

A Table of the Satitudes of the Principal Cityes, Townes, and Islands in & about Great Britain & Ireland

ENGLAND	°	′
Arundel	51	00
Barwick	55	54
Bedford	52	15
Bristol	51	35
Buckingham	52	10
Cambridge	52	12
Canterbury	51	25
Carlisle	55	20
Chester	53	20
Chichester	50	48
Colchester	52	08
Dover	51	20
Derby	53	00
Derchester	50	50
Durham	55	00
Exeter	50	50
Falmouth	50	22
Guilford	51	12
Glocester	52	00
Hartford	51	50
Hereford	52	07
Huntington	52	30
Ipswich	52	20
Kendall	54	24
Lancaster	54	15
Leicester	52	45
Lincoln	53	20
London	51	32
Northampton	52	24
Norwich	52	45
Newcastle	55	12
Nottingham	53	00
Oxford	51	43
Portsmouth	51	08
Plimouth	50	36
Reading	51	20
Salisbury	51	12
Stafford	52	50
Shrewsbury	52	50
Stamford	52	44
Truro	50	30
Warwick	52	30
Winchester	50	20
Worcester	52	45
York	54	00

WALES	°	′
Anglesey	53	28
Brecknock	52	10
Cardigan	52	12
Carmarthen	51	58
Carnarvan	53	18
Denbigh	53	15
Flint	53	18
Landaffe	51	36
Monmouth	51	51
Montgomery	51	56
Pembroke	51	26
Redner	52	40
St. Davids	52	00
ISLANDS		
Garnsey	49	30
Jersey	49	12
Lundy	51	22
Man	54	24
Portland	50	30
Wight	50	30
SCOTLAND		
Aberdine	57	32
Dumblain	56	21
Dundee	56	30
Dunkel	56	28
Edinburgh	56	00
Glascow	55	50
Orkney	60	06
St. Andrews	56	30
Starling	56	12
IRELAND		
Antrim	54	30
Argles	54	10
Armagh	54	14
Clare	54	34
Cork	51	53
Dredagh	53	38
Dublin	54	27
Dundalk	53	52
Galloway	55	04
Kildare	53	00
Knockferans	54	37
Kinsale	51	41
Limerick	52	30
Waterford	52	09
Wexford	54	18


Aries
Macro
Taurus
Gemini
Cancer
Leo
Virgo
Libra
Pituita
Sanguis
Cholera


Libra
Scorpio
cosmus
Pituita
anguis
holera

Cor Caroli

Ursa major

20
10
30
20
Tropicus
Corona
Borealis
20
Cancri
10
Arcturus
M
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20
10

Cor Caroli
Boots
Coma Berenices
50
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20
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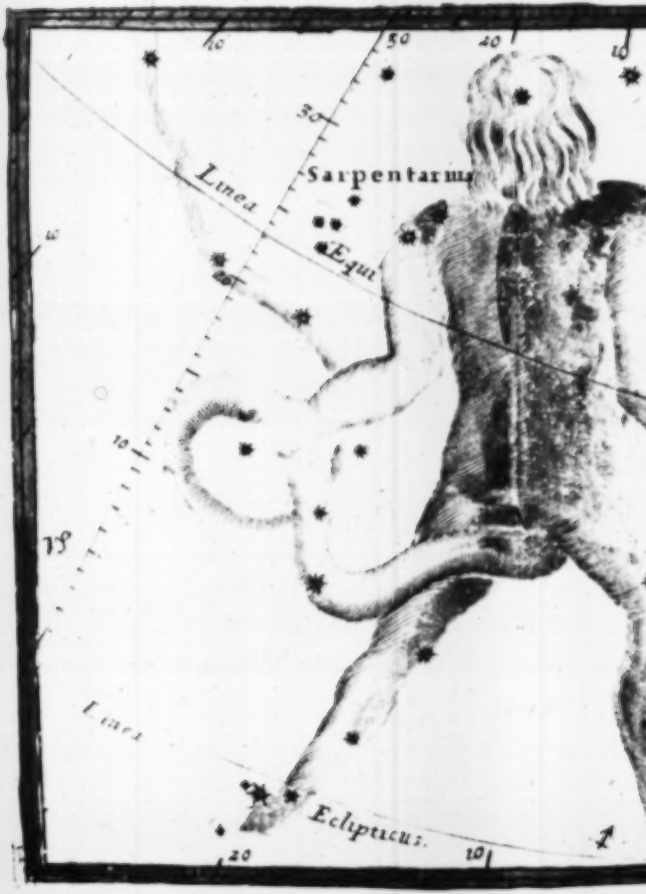
10
20
50
20


Sarpentarius
Linea
Equi
Linea
Eclipticus.
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noctialis.
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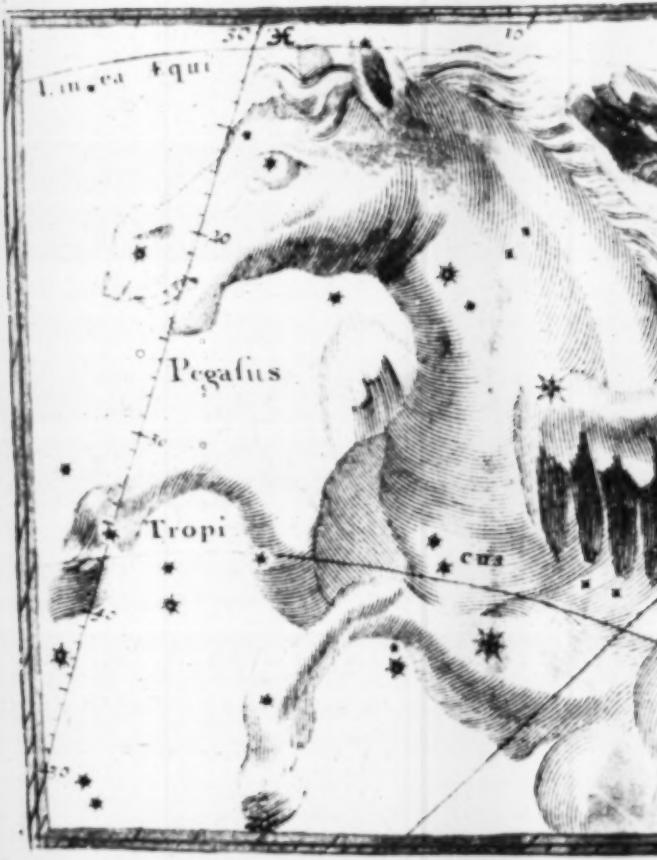
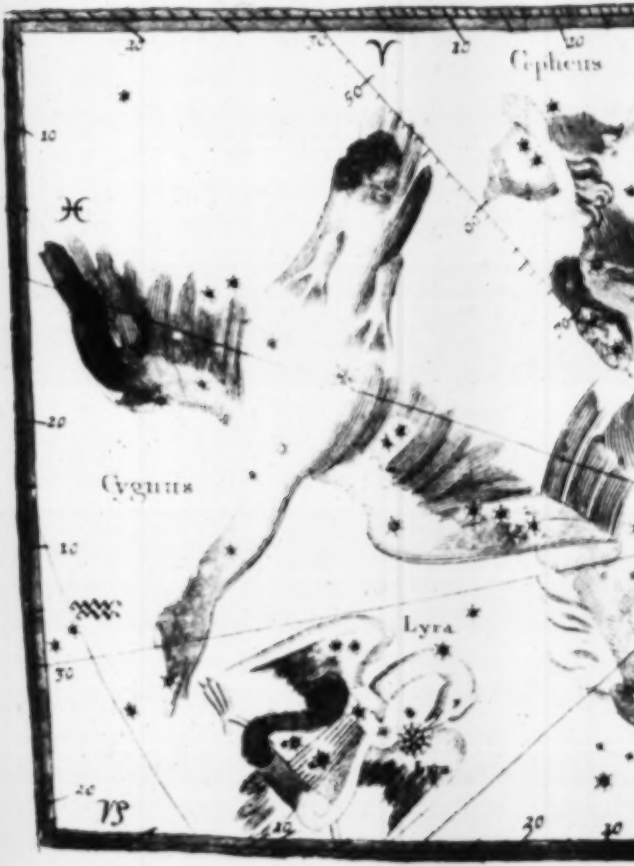
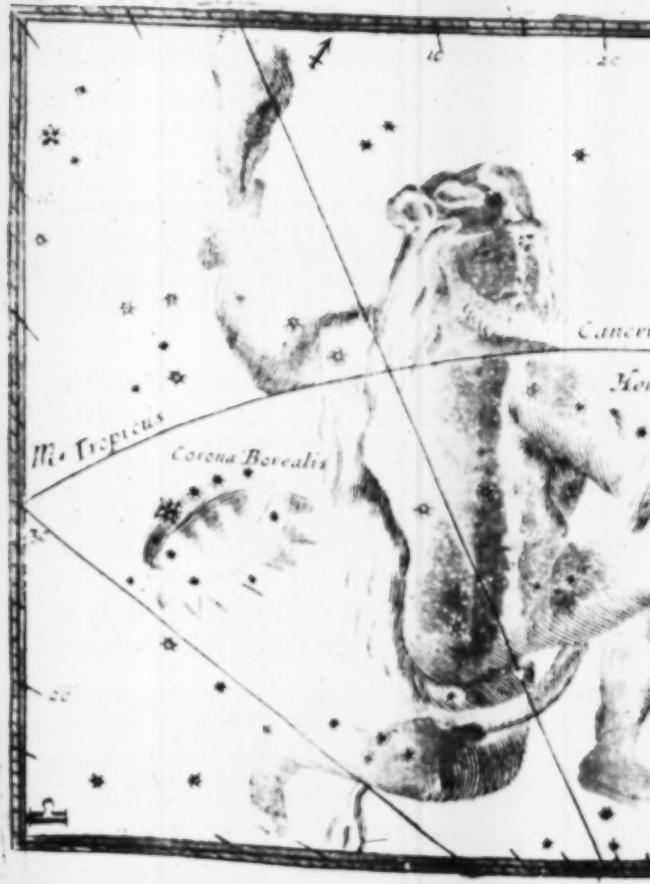
m 20


Pegasus
Tropi

Piscis Aust
Can


Cepheus
Cygnus
Lyra

Draco



10
20
Cancri
Mo Tropicus
Corona Borealis
20

20
30
40
Cancri
Hercules
50
60
Lyra
70 Lyra
10
20
30

Tropicus Cancri
Delphinus
+0
30
Linea Æquinocti
20
Antino
10

V3
Aquila
Antinous
V3

30
Y
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10
Cassiopea
II
20

Ari
10
20
Pisces Bor.
Andromeda
Pisces
8
Triangu
lum
Cetus

Aurriga
Capella
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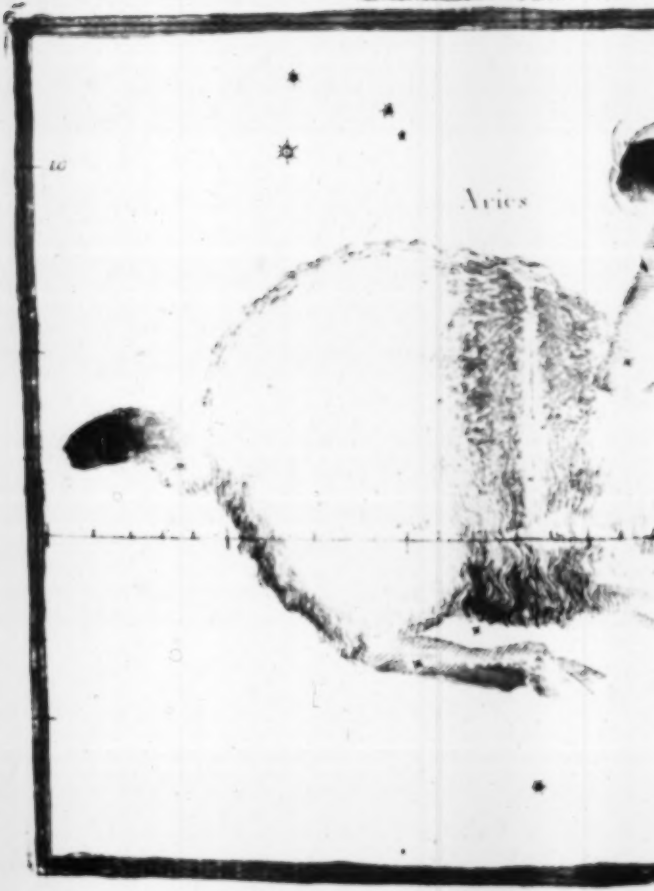
Perſeus
Caput Medusæ
8


Aries

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II
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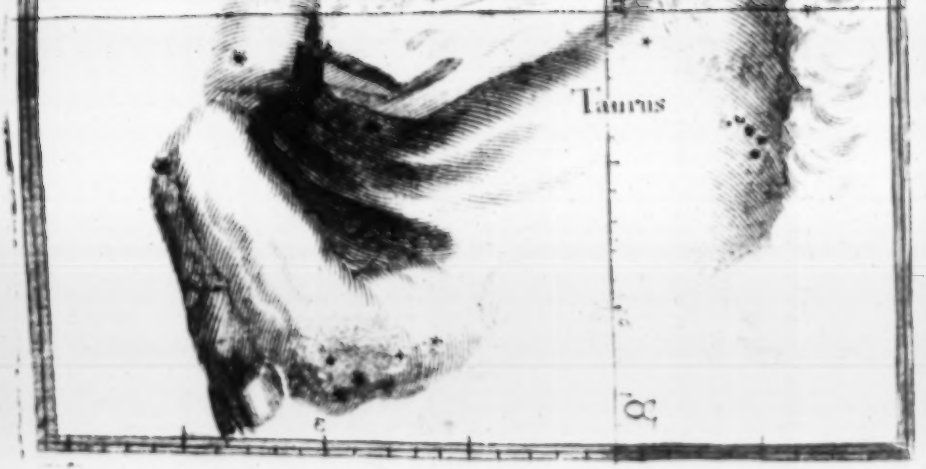
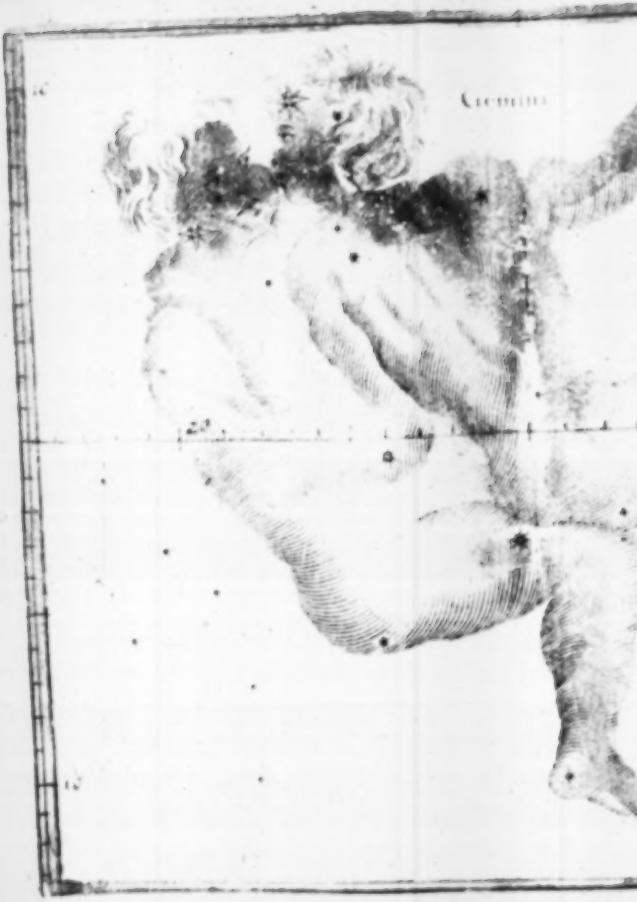
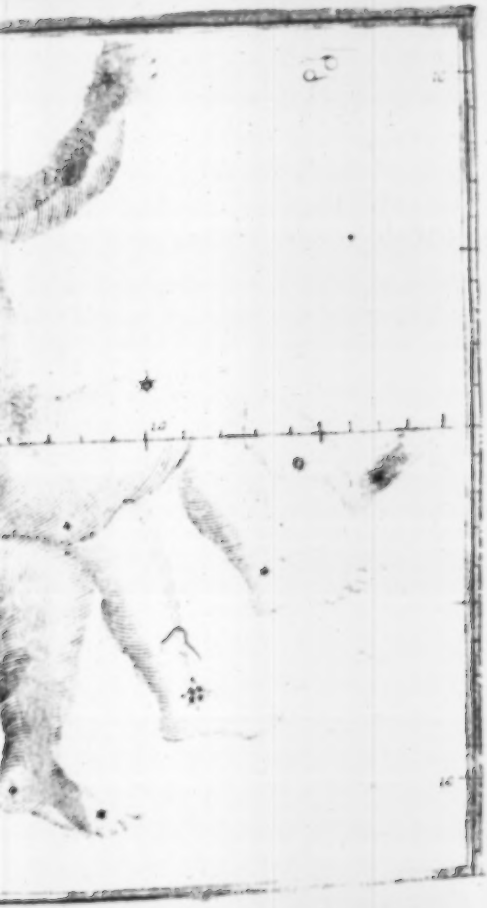

Taurus





Cancer
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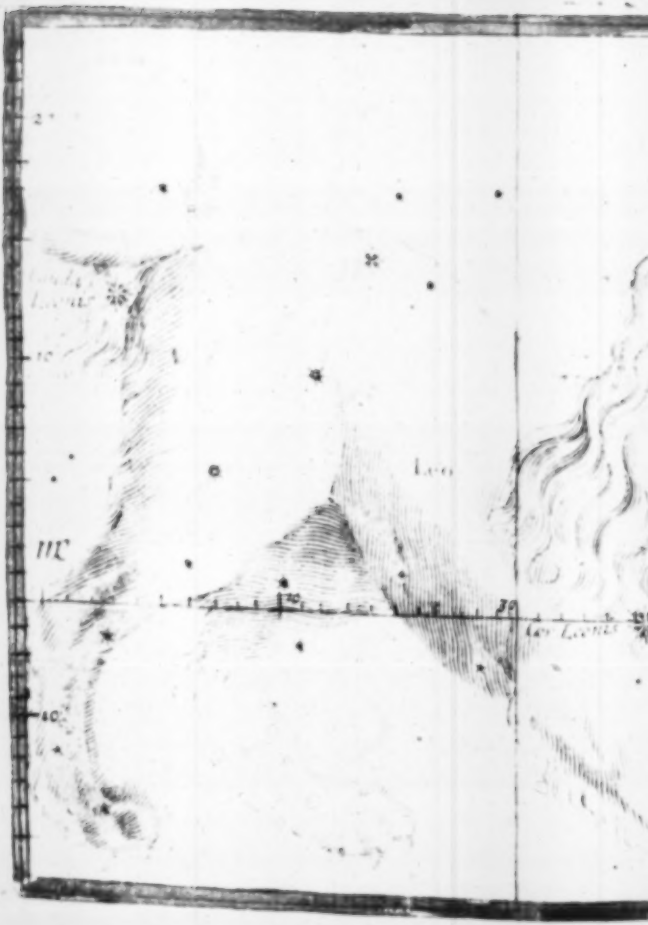

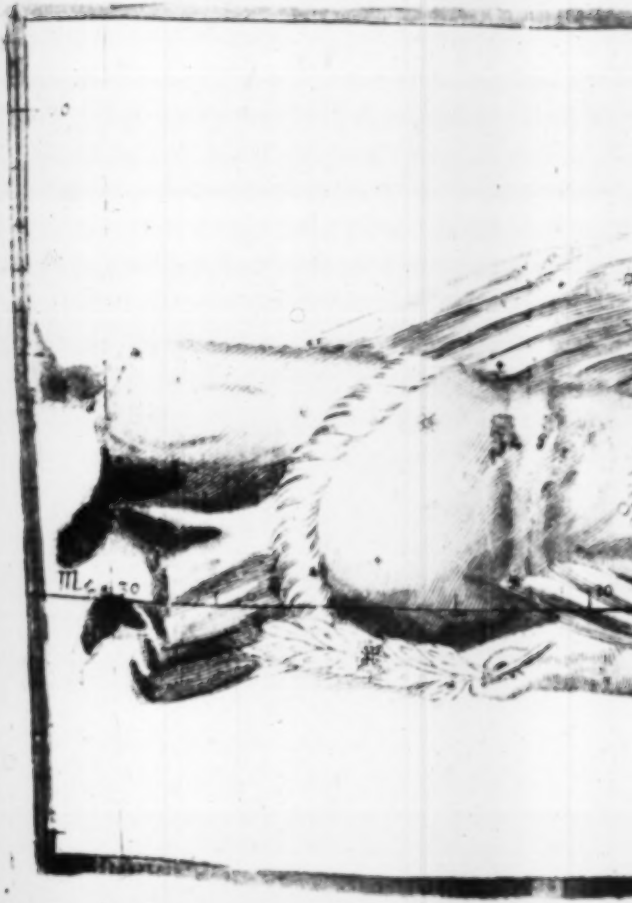

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Libra
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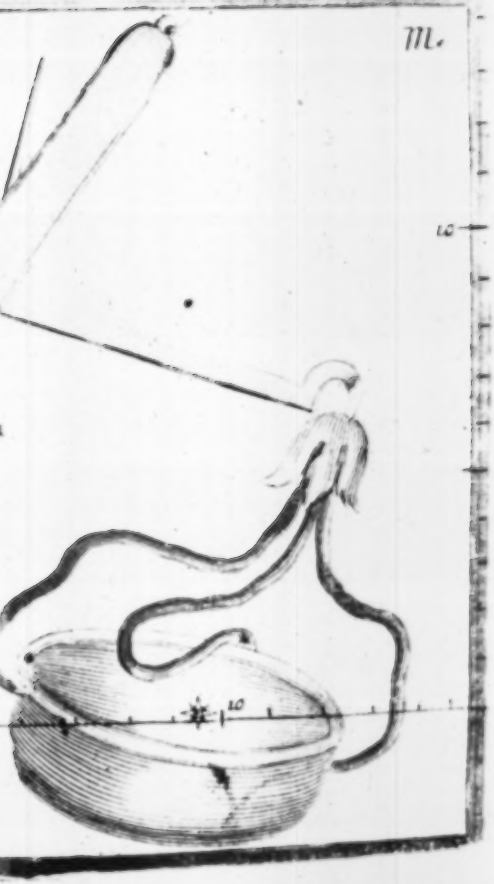
III.
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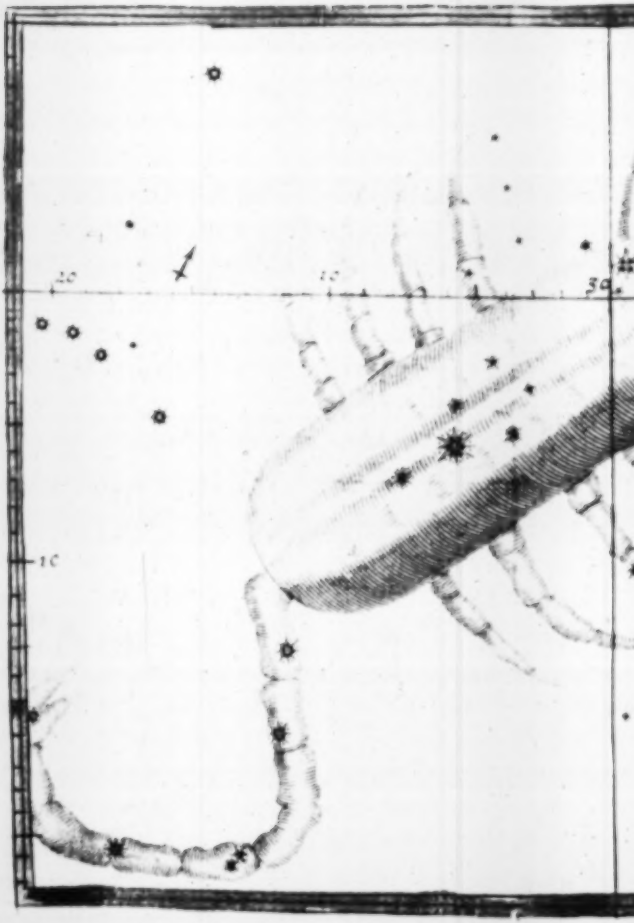
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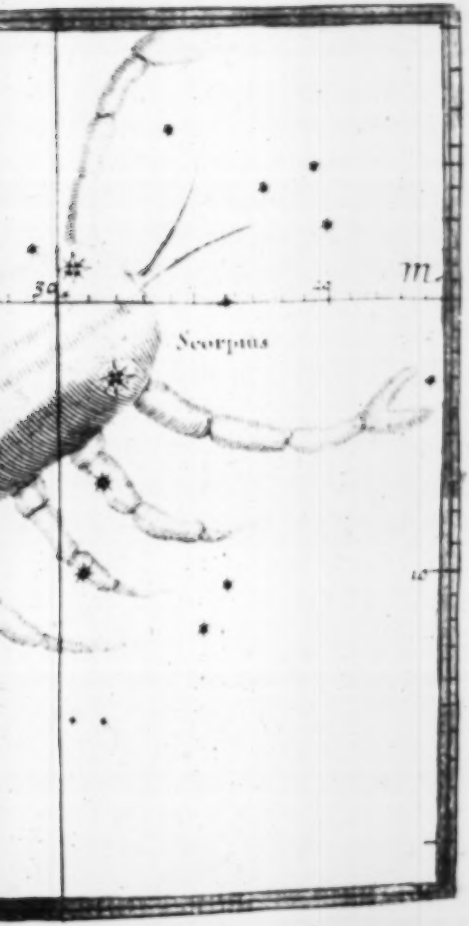
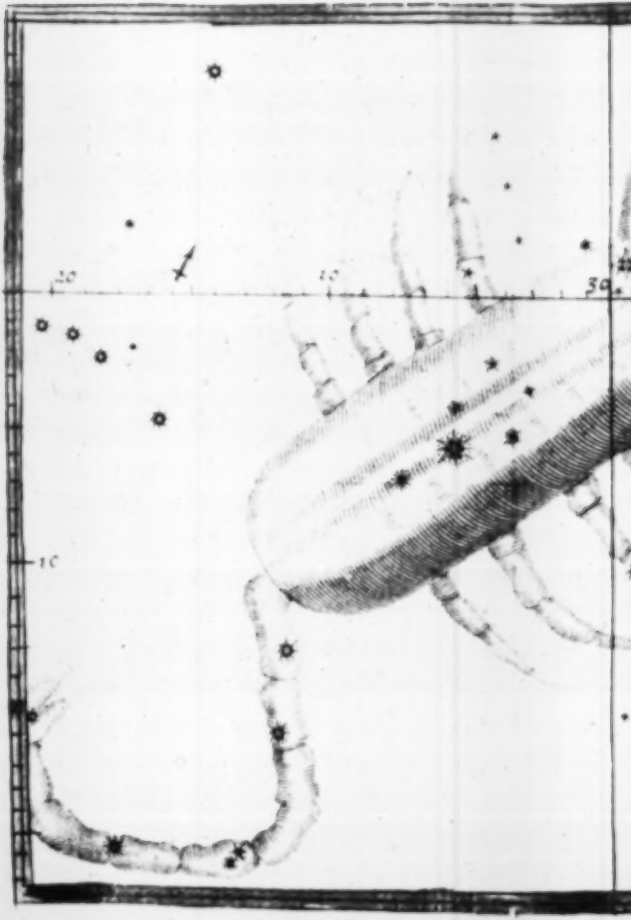

m
Scorpius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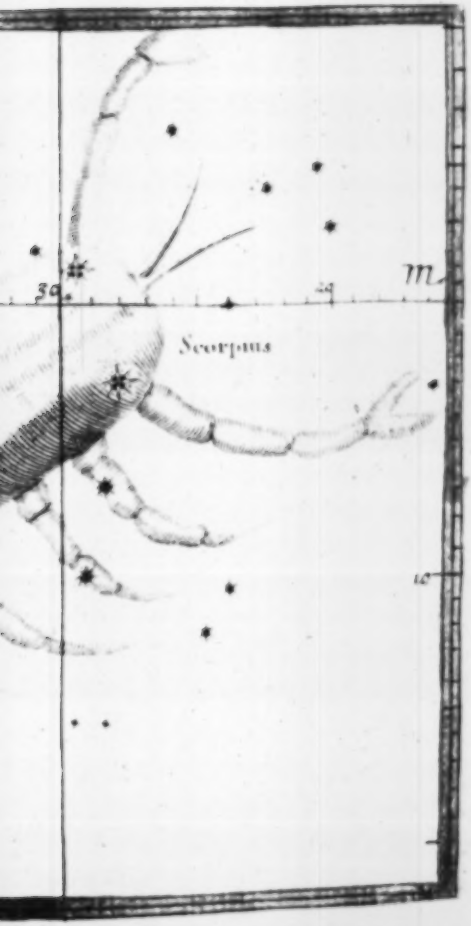
m
Scorpius

Sagittarius

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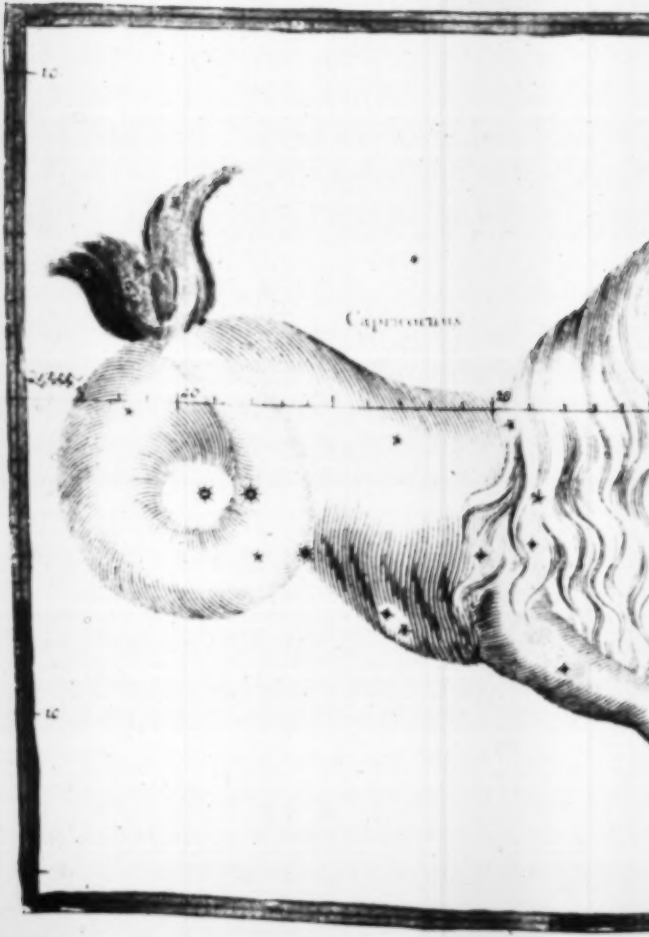
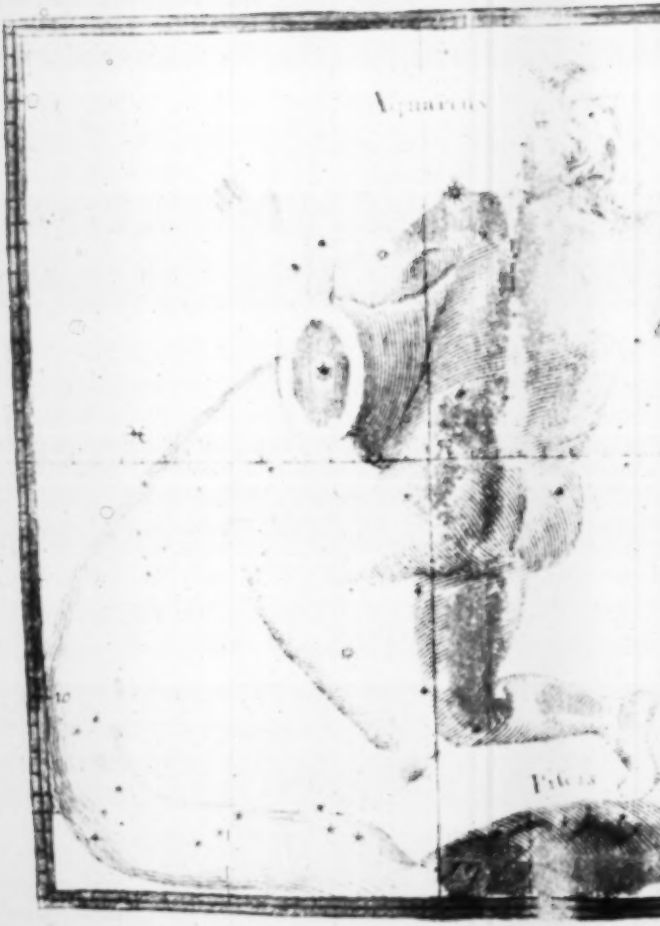
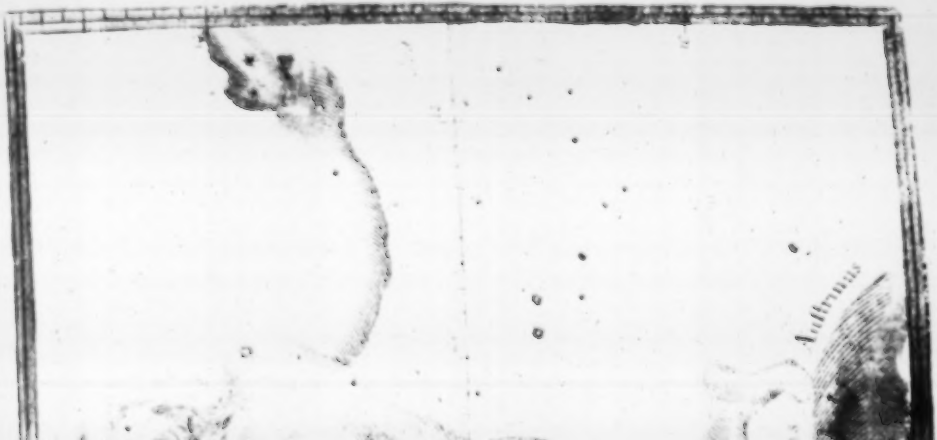
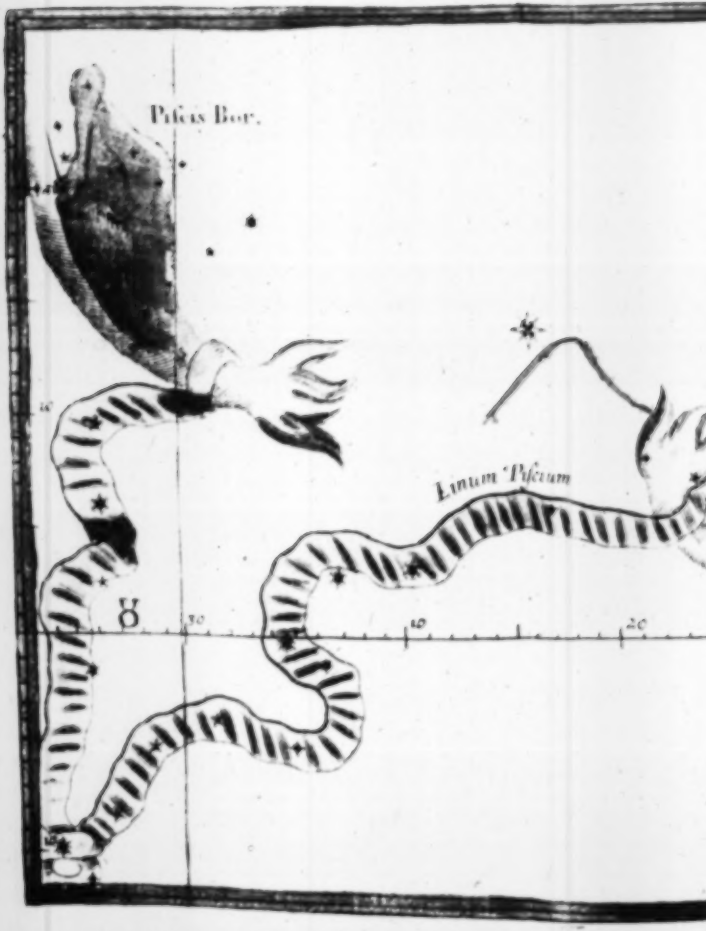

Capricornus


Aquarius
Pisces


Anthrenus


Piſcis Bor.
Linum Piſcium
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Pisces . Aust
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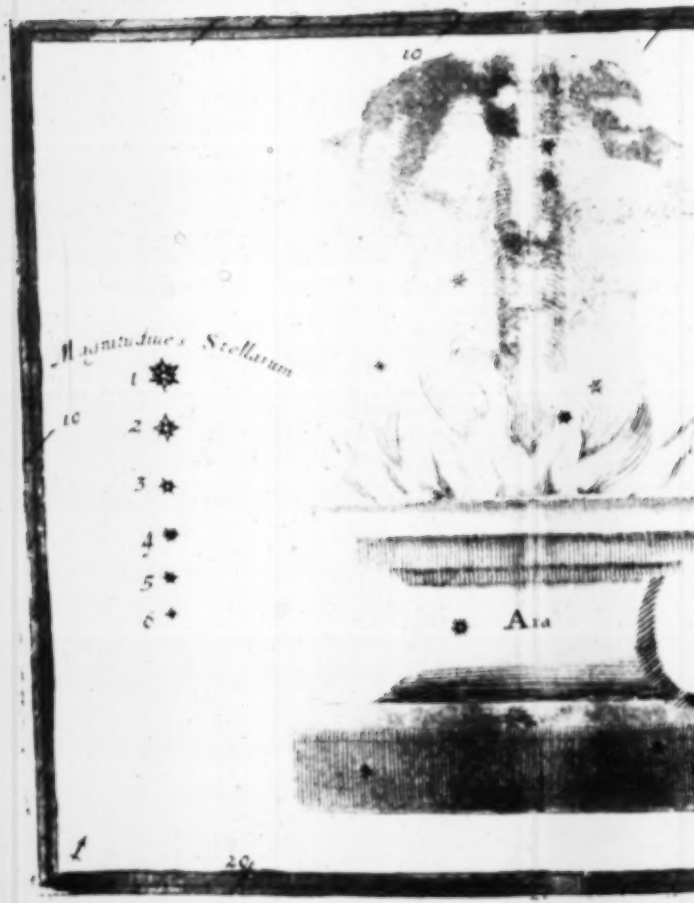
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Magnitudines Stellarum
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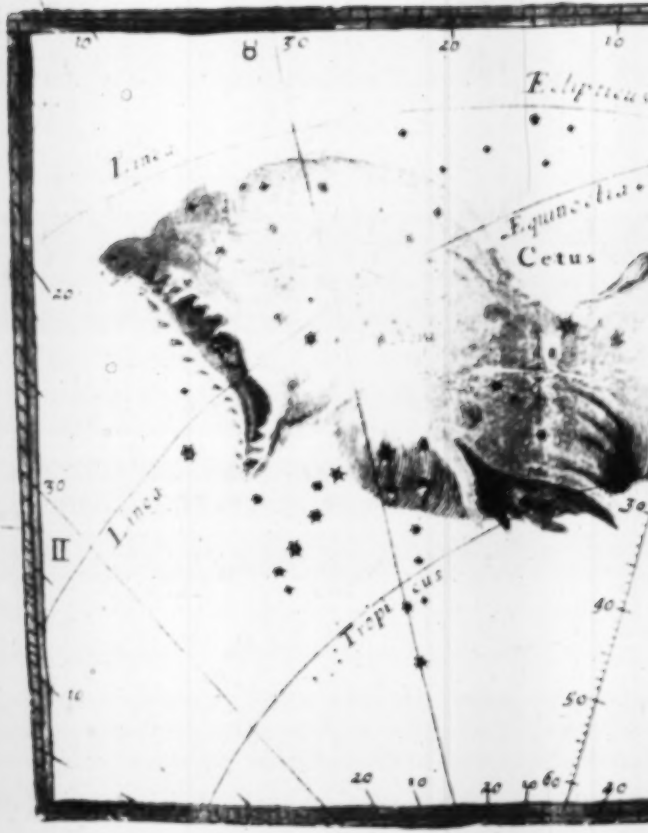
Cetus
Triangulum

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Capricornus

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20
Tropicus

10
30
Camari
Eridanus
50
60
70

Tropicus
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30
60

Canis major
Sirius
Ca
pricornus
Argo
Columba
Noachi

Centaurus
Lupus
Pes
Centauri

30
20
Crofiers
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30
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20
Procyon
Linea
10
30
30
20

10
Canicula
Equinoctialis
10
II

Eclip
Spica
Corvus
Crater
Tropicus
Capri
Corni

ticus.
all
Linea.
Hydra
Cor Hydra
Corni.
Equinoctialis
69

Orion
Lynx
Sirius

Æquinoctialis
10
30
20
10

Phœnix
Acarnar
Hydrus
Toucan

20
10
Grus
Indus
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Pavo
V.o

M.
Robur Carolinum
Musca
Triangulum
Chamæleon
Apus
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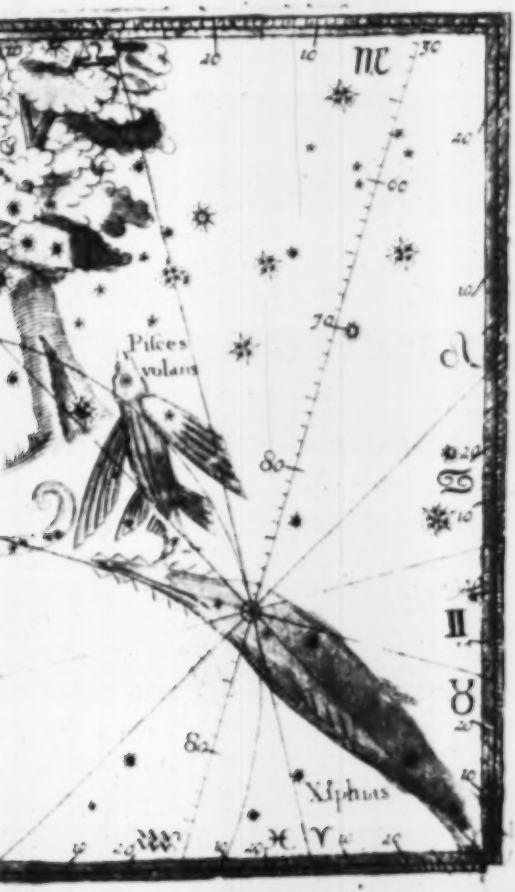
Pisces volans
Xiphias